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NORTHERN ESSEX COMMUNITY COLLEGE

Haverhill, Massachusetts

COURSE DESCRIPTIONS and CURRICULA

Spring 1974

A Door To Your Future . . .

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THE COLLEGE CURRICULA

Northern Essex is a comprehensive community college which offers transfer-oriented programs, occupationally-oriented programs and developmental programs. Through its counseling and guidance services, Northern Essex assists the student in choosing a program of education best suited to his interests and abilities.

The plan for education at Northern Essex is based on the premise that people in the Merrimack Valley community have differing abilities, needs, desires and interests; that their educational needs vary as they continue through life; and that these educational needs must be met by varying kinds of programs.

Northern Essex includes a framework of general education courses in all associate degree programs. The college encourages students to explore more than one area of study and to change programs when they discover that their needs are not met by the program in which they are enrolled.

Within this broad framework are specific curricula with individual characteristics, requirements and emphases determined by the purpose for which they are intended.

The atmosphere of growth, challenge and innovation in Northern Essex's internal development is reflected in the attitudes of faculty, administration and student body. Dynamic progress and constant self-study are ideas shared by all members of the Northern Essex academic community.

TRANSFER PROGRAMS

Associate in Arts - Liberal Arts
Associate in Science - Engineering Science
Associate in Science - Business Transfer

The transfer programs at Northern Essex give students planning to continue their education at senior institutions a fully transferable, comprehensive education equivalent to the first two years of a four-year college or university.

However, not all students have deep-seated interests when they enter college and these students use the first two years to test their aptitudes, abilities and preferences in different subjects before specializing.

The transfer programs give students the opportunity to explore a wide range of disciplines. Students in these programs do not place emphasis on marketing the knowledge they gain immediately. Students who wish to grow in general education, without transfer planning, find many interesting areas in the Liberal Arts program.

Students in these programs usually plan to continue their education beyond the associate degree level. The courses in these programs parallel in structure and aim the first two years of the curricula in most senior institutions. They are intended for transfer, and successful completion of these courses should provide a good basis for transfer with advanced standing to a senior institution.

Completion of these programs does not, however, guarantee successful transfer. The receiving institution makes the final decision on individual transfer applications. It is the student's responsibility to make sure that he has completed the requirements of the senior institution he plans to attend.

CAREER PROGRAMS

THE ASSOCIATE IN SCIENCE DEGREE

Accounting

Business Management

Executive Secretarial

Executive Secretarial: Legal Option

Executive Secretarial: Medical Option

Executive Secretarial: Technical Option

Executive Secretarial: Accounting Option

Banking

Electronic Technology

Computer Technology

Civil Technology

Environmental Technology

Human Services: Child Care

Human Services: Mental Health Technology

Human Services: Educational Assistant

Law Enforcement

Nursing

Radiologic Technology

Respiratory Therapy Technology

Respiratory Therapy: Certificate Program

Medical Record Technology

Nursing Home/Small Hospital Administration

Career programs emphasize the immediate marketing of knowledge and skills developed in a programs. Successful completion of a career program prepares the student for direct entry into jobs in public service, business and industry.

The basic structure of these programs concentrates on theoretical and technical courses in the skills necessary for a particular phase of employment. Students, however, also explore areas of cultural significance and develop intellectually as well as professionally through the election of liberal arts courses.

Career programs are not specifically designed for transfer to a senior institution; but they do not prohibit transfer. Many graduates of career programs at Northern Essex, who have had good quality point averages, have been accepted in baccalaureate curricula at senior institutions related to their career fields.

THE CURRICULUM PLAN

The plan for each program of studies designates certain courses which are specifically required in the program. The plan usually specifies other areas of study from which a specified number of courses must be selected by the student (business electives, liberal arts electives, social science electives, and others). In certain programs an opportunity is provided for the student to select a specified number of courses without restriction (electives). Each curriculum plan states the total number of credit hours which must be earned to attain a degree in that program.

PROGRAM COURSE REQUIREMENTS

When a course, or courses, is listed as a requirement for a degree in a given curriculum, and the student wishes to obtain the degree without taking the course, or courses, the student may make a request for waiver to the Dean of Students. The Dean of Students shall consult with the appropriate division and department chairmen in formulating a decision. The Dean of Students may also refer such requests to the Board of Recourse and Review of the Student Academic Affairs Committee for an advisory opinion.

COURSE PREREQUISITES

Certain course are at a level of difficulty which requires from the student specific background preparation - or prerequisite courses - before he can perform successfully at the college level. Students will not be permitted to take any course without fulfilling the prerequisites required for that course except with the permission of the course instructor and the appropriate division chairman.

When a course is listed as a prerequisite for another course, and the student has not fulfilled that prerequisite, a request for waiver of the preprequisite may be made on a form provided by the Registrar to the instructor of the course, and the chairman of the department offering the course.

ELECTIVES

An elective is any course which is not required in a specific curriculum. Every program offered in the college includes electives. Students should elect courses which are relevant to their personal interests, to their program considered as a whole, to the requirements of colleges to which they may wish to transfer, and to their development as individuals with broad and varied cultural backgrounds.

Assistance in choosing electives is available from the faculty and counseling staff. Students are urged to consult counselors or faculty to make certain their elective choices are acceptable to the particular program in which they are enrolled. Courses which will be offered as electives during a specific semester will be announced at registration for that semester.

THE ASSOCIATE IN ARTS DEGREE:

LIBERAL ARTS

The Liberal Arts program is designed for students interested in a broad academic education rather than career programs. The program is intended for students who plan to continue education beyond the associate degree level by transferring to a four-year college or university and it is intended for students who have not yet decided on the educational objectives best suited to their interests and potential.

Minimum requirements in mathematics and natural sciences, social science, communications and the humanities are included in the program to present many phases of academic discipline to students. The widest possible elective choice enables the student to explore areas freely or concentrate in a field of particular interest. Liberal Arts students may also elect a number of courses in career programs. Students are urged to work with counselors or faculty advisors when planning their courses of study.

		Courses	Credit
REQUIREMENTS FOR GRADUATION	*1	Basic Communications	6
	*2	Natural Science	6-8
		Mathematics	6
	*3	Humanities	6
	*4	Social Science	6
		Electives	30-28
		Required for Graduation	60

*1 Basic communications courses are English Composition I and English Composition II.

*2 The natural science requirement may be filled by laboratory, or non-laboratory, courses. Students who intend to transfer, should check the natural science requirements of the four-year institution they choose before selecting their courses.

*3 Humanities courses include: foreign languages, communications, philosophy, art, music, literature and religion.

*4 Social science courses include: anthropology, psychology and sociology, history, government, economics and geography.

Electives may be chosen from the entire slate of courses offered in the college with two restrictions:

A. Six credit hours maximum may be elected outside the Division of Liberal Arts.*

Students who wish to elect more than the maximum credits allowed outside the Division of Liberal Arts must have permission in advance from the Dean of Students and the recommendation of the division or department chairman concerned.

B. A maximum of three credit hours in physical education may be counted toward graduation. These three credits are counted in addition to the six credits listed in section A above.

*THE DIVISION OF LIBERAL ARTS

Department of Communications
Department of Foreign Languages
Department of History and Government
Department of Psychology and Sociology
Department of Philosophy and Fine Arts
Department of Mathematics and Natural Sciences

A SUGGESTED NON-TRANSFER LIBERAL ARTS PROGRAM

FIRST SEMESTER:	Course	Credit	Course	Credit
	English Composition I	3	English Composition II	3
SECOND SEMESTER:	Finite Mathematics	3	Mathematics	3
	Humanities	3	Humanities	3
	Social Science	3	Social Science	3
	Elective	3	Elective	3
		15		15

THIRD SEMESTER:	Course	Credit	Course	Credit
	Science	3-4	Science	3-4
FOURTH SEMESTER:	Elective	3	Elective	3
	Elective	3	Elective	3
	Elective	3	Elective	3
		15-16		15-16

A SUGGESTED TRANSFER LIBERAL ARTS PROGRAM - BACHELOR OF SCIENCE IN EDUCATION

FIRST SEMESTER:	Course	Credit	Course	Credit
	English Composition I	3	English Composition II	3
SECOND SEMESTER:	Finite Mathematics	3	Mathematics	3
	Science	3-4	Science	3-4
	Introduction to Psychology	3	**Child or Adolescent Psychology	3
	*History	3	*History	3
		15-16		15-16

*USUALLY WESTERN CIVILIZATION I AND II
**CHILD PSYCHOLOGY FOR ELEMENTARY MAJORS
ADOLESCENT PSYCHOLOGY FOR SECONDARY MAJORS

THIRD SEMESTER:	Course	Credit	Course	Credit
	*History	3	*History	3
	**Speech	3	Literature	3
	Literature	3	Elective	3
	Elective	3	Elective	3
	Elective	3	Elective	3
		15		15

*USUALLY U. S. HISTORY I AND II
**SPEECH IS REQUIRED IN MOST BACHELOR OF SCIENCE-EDUCATION PROGRAMS

EDUCATION MAJORS ARE URGED TO CONSULT A CATALOG OF THE FOUR-YEAR INSTITUTION OF THEIR CHOICE, SINCE DEGREE REQUIREMENTS IN ELEMENTARY AND SECONDARY EDUCATION ARE QUITE SPECIFIC IN MOST COLLEGES AND VARY GREATLY FROM COLLEGE TO COLLEGE.

THE ASSOCIATE IN SCIENCE DEGREE:

ACCOUNTING

The Accounting Program provides two semesters of selected liberal arts courses to develop general understanding and knowledge. The basic core of business courses introduces the student to the broad variety of areas within the field and prepares him to select that particular phase of specialization which best suits his needs, abilities and interests. The Accounting specialization is designed to prepare graduates to enter Business, Industry and Government in the specialized accounting field.

The following format is intended as a workable guide for students in course selections and program planning. The Accounting Program requires 60 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introductory Accounting I (AC6601)	3
*Mathematics of Finance (MA5613)	3
Principles of Marketing (MK6678)	3
Principles of Sociology (S03321)	
or	3
Introduction to Psychology (PS1101)	
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Introductory Accounting II (AC6602)	3
*Business Statistics (MA5671)	3
Speech (EN8011)	3
Introduction to Psychology (PS1101)	
or	3
Principles of Sociology (S03321)	
	15

*A liberal arts mathematics course should be elected, in place of mathematics of finance and business statistics, by qualified students.

THIRD SEMESTER

Course	Credit
Business Finance (FI3652)	3
Business Law I (LW6651)	3
Intermediate Accounting I (AC6651)	3
Cost Accounting (AC6671)	3
*Man and His Environment (SC5011)	3
	15

FOURTH SEMESTER

Course	Credit
Survey of Economics (EC3652)	3
Personnel Management (MG6676)	3
Intermediate Accounting II (AC6652)	3
Tax Accounting (AC6682)	3
Elective	3
	15

*Another sicence course may be elected in place of this requirement.

THE ASSOCIATE IN SCIENCE DEGREE:

BANKING

The Banking Program has been developed by the college in conjunction with the educational committee of the Merrimack Valley Chapter, American Institute of Banking. This program is designed, primarily for those presently employed in banking. The courses parallel those offered by the American Institute of Banking and students are able to work towards American Institute of Banking Certification as they complete associate degree requirements. The program provides the students with a broad academic background, the fundmentals of banking management and business management skills. The banking program is offered through the division of Continuing Education and Community Services.

The following format is intended as a workable guide for students in course selections and program planning. The Banking Program requires 60 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introductory Accounting I (AC6601)	3
Mathematics of Finance (MA5613)	3
Survey of Economics (EC3652)	3
Principles of Bank Operations (BK6601) or Savings & Time Deposit Banking (BK6602)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Introduction to Psychology (PS1101) or Principles of Sociology (SO3321)	3
Speech (EN8011)	3
Money and Banking (BK6611)	3
Introductory Accounting II (AC6602)	3
	15

THIRD SEMESTER

Course	Credit
Business Law I (LW6651)	3
Elective (Liberal Arts)	3
Personnel Management (MG6676)	3
*Banking Elective	3
*Banking Elective	3
	15

FOURTH SEMESTER

Course	Credit
Business Law II (LW6652)	3
Elective (Liberal Arts)	3
Elective	3
Bank Management (BK6612)	3
**Banking Elective	3
	15

*THIRD SEMESTER BANKING ELECTIVES:

- Installment Credit
- Credit Administration
- Home Mortgage Lending
- Trust Department Services

**FOURTH SEMESTER BANKING ELECTIVES:

- Bank Letters and Reports
- Analyzing Financial Statements
- Fundamentals of Bank Data Processing
- Bank Public Relations and Marketing

Any third semester banking elective not previously chosen may be selected.

THE ASSOCIATE IN SCIENCE DEGREE:

BUSINESS MANAGEMENT

The Business Management Program provides two semesters of selected Liberal Arts courses to develop general knowledge and understanding. The basic core of business courses introduces the student to the broad variety of areas, within the field and prepares him to select the particular area of specialization best suited to his needs, abilities and interests. The Business Management specialization qualified graduates to enter business and industry, in any of several areas. Careful choice of electives builds a background in a particular business area: marketing, insurance, real estate, or industrial management.

The following format is intended as a workable guide for students in course selections and program planning. The Business Management Program requires 60 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introductory Accounting I (AC6601)	3
*Mathematics of Finance (MA5613)	3
Principles of Marketing (MK6678)	3
Principles of Sociology (S03321) or Introduction to Psychology (PS1101)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Introductory Accounting II (AC6602)	3
*Business Statistics (MA5671)	3
Speech (EN8011)	3
Introduction to Psychology (PS1101) or Principles of Sociology (S03321)	3
	15

*A LIBERAL ARTS MATHEMATICS COURSE SHOULD BE ELECTED, IN PLACE OF MATHEMATICS OF FINANCE AND BUSINESS STATISTICS, BY QUALIFIED STUDENTS.

THIRD SEMESTER

Course	Credit
Business Finance (FI3652)	3
Business Law I (LW6651)	3
Business Elective	3
Business Elective	3
Elective	3
	15

FOURTH SEMESTER

Course	Credit
Survey of Economics (EC3652)	3
Personnel Management (MG6676)	3
Business Elective	3
Business Elective	3
*Man and His Environment (SC5011)	3
	15

*ANOTHER SCIENCE COURSE MAY BE ELECTED TO REPLACE THIS REQUIREMENT.

THE BUSINESS ELECTIVES:

Retailing
Advertising
Salesmanship
Tax Accounting
Cost Accounting
Business Law II
Industrial Management
Managerial Accounting
Time and Motion Study
Principles of Insurance
Credits and Collections
Principles of Real Estate
Introduction to Data Processing

THE ASSOCIATE IN SCIENCE DEGREE:

BUSINESS TRANSFER

The Business Transfer Program provides two semesters of liberal arts study, selected to develop general knowledge and understanding. A basic core of business courses introduces the student to the broad variety of areas within the field, and prepares him to select the particular area of specialization best suited to his needs, abilities and interests. The business transfer specialization is designed for students planning to transfer to a four-year institution after completing the associate degree program. To enroll in this program students must demonstrate academic ability in core courses, be recommended by the department of business chairman and be approved by the Dean of Students.

The following format is intended as a workable guide for students in course selections and program planning. The Business Transfer Program requires 62 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introductory Accounting I (AC6601)	3
*Mathematics of Finance (MA5613)	3
Principles of Marketing (MK6678)	3
Principles of Sociology (SO3321)	
or	3
Introduction to Psychology (PS1101)	
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Introductory Accounting II (AC6602)	3
*Business Statistics (MA5671)	3
Speech (EN8011)	3
Introduction to Psychology (PS1101)	
or	3
Principles of Sociology	
	15

*A liberal arts mathematics course should be elected in place of Mathematics of Finance and Business Statistics, by qualified students.

THIRD SEMESTER

Course	Credit
Principles of Economics I	3
Natural Science	4
*Elective	3
*Elective	3
*Elective	3
	16

FOURTH SEMESTER

Course	Credit
Principles of Economics II	3
Natural Science	4
*Elective	3
*Elective	3
*Elective	3
	16

*Elective should be chosen to meet the transfer requirement of the particular four-year college the student plans to attend.

THE ASSOCIATE IN SCIENCE DEGREE:

HUMAN SERVICES: CHILD CARE

The Child Care Program instructs students in the principles and theory of child development and in the principles theory and practices of early childhood education, to train them as teaching and child care assistants for pre-school children inter-acting in a group situation. The curriculum design includes an integrated practical experience component which allows students to apply at once new skills and knowledge in real situations.

The following format is intended as a workable guide for students in course selections and program planning. The Child Care Program requires 65 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introduction to Psychology (PS1101)	3
Human Biology (BI5510)	3
Introduction to Early Childhood Education (CC2201)	3
Introduction to the Creative Experience (FA7012)	3
Observation and Recording of Child Behavior (CC2311)	1
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Child Psychology (PS1151)	3
Man and His Environment (SC5011)	3
Problems in Early Childhood Education (CC2112)	3
Children's Literature (EN8401)	3
Laboratory in Program Development (CC2312)	2
	17

THIRD SEMESTER

Course	Credit
Principles of Sociology (SO3321)	3
Speech (EN8011)	3
Educational Psychology (PS1153)	3
*Laboratory in Child Care Education I	3
Physical Education/Recreation Activities (PE2293)	1
Media Workshop (CC2480)	1
**Elective	3
	17

FOURTH SEMESTER

Course	Credit
Seminar in Philosophy of Child Care (CC2264)	3
Development of pre-School Mathematics (MA0500)	3
*Laboratory in Child Care Education II (CC2354)	6
Elective	3
	15

*CLINICAL EXPERIENCE

**SUGGESTED ELECTIVES: Social Psychology Abnormal Psychology Contemporary Social Problems

THE ASSOCIATE IN SCIENCE DEGREE:

CIVIL TECHNOLOGY

The Civil Technology Program provides students with theoretical and practical knowledge and experience which trains them as qualified technicians in the surveying, layout, plans and specifications, designs and supervisory areas of the growing construction field. Broad construction site experiences are part of the curriculum. The theory presented also prepares students interested in education beyond the associate degree level.

The following format is intended as a workable guide for students in course selections and program planning. The Civil Technology Program requires 67 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Algebra & Trigonometry (MA5621)	4
Graphics (ET6601)	2
Drawing for Civil Technology (CE6612)	1
Surveying I (CE6601)	4
	14

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Advanced Algebra & Trigonometry (MA5622)	4
Mechanics for Civil Technology (CE6651)	3
Surveying II (CE6602)	4
Computer Applications to Civil Technology Problems (CT6682)	4
	18

THIRD SEMESTER

Course	Credit
Advanced Technical Math I (MA5651)	4
Highway Engineering (CE6663)	3
Strenght of Materials (CE6653)	4
Sanitary Engineering (CE6671)	3
*Elective	3
	17

FOURTH SEMESTER

Course	Credit
Advanced Surveying (CE6603)	4
Soil Mechanics (CE6672)	4
Applied Physics II (PI5622)	4
Structural Analysis and Design (CE6654)	3
*Elective	3
	18

*Electives must be selected from courses offered in the Division of Liberal Arts

Prerequisites for Admission: TWO YEARS OF ALGEBRA; GEOMETRY AND TRIGONOMETRY HELPFUL, BUT NOT REQUIRED

THE ASSOCIATE IN SCIENCE DEGREE:

COMPUTER TECHNOLOGY

The Computer Technology program is designed primarily to prepare the student for employment opportunities with immediately marketable skills in data processing. Our graduates have entered varied areas of computer technology including system analysis training programs, programming, and data processing management. The curriculum is based almost entirely on various skill techniques, which are interdependent in their development, and which are based on a strong background in mathematics, accounting, and communications. The course includes field trips to computer installations, and the college's computer facilities are used extensively for work shops. There is good transfer potential in the program, and students planning to continue their education beyond the associate degree level should select electives to fulfill the requirement for transfer of the four-year institution they choose.

The following format is intended as a workable guide for students in course selections and program planning. The Computer Technology Program requires 66 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Finite Mathematical Models I (MA5621)	3
Introductory Accounting I (AC6601)	3
Fundamentals of Digital Logic (CT6601)	3
Business Programming I (CT6611)	4
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Finite Mathematical Models II (MA5622)	3
Introductory Accounting II (AC6602)	3
Speech (EN8011)	3
Scientific Programming I (CT6622)	4
	16

THIRD SEMESTER

Course	Credit
Introduction to Statistics (MA5333)	3
Elective	3
Elective	3
Assembly Programming (CT6651)	4
Elective (Liberal Arts)	3
	16

FOURTH SEMESTER

Course	Credit
Elective	3
Business Programming II (CT6652)	4
Systems Development & Design (CT6676)	4
Advanced Programming (CT6678)	4
Elective (Liberal Arts)	3
	18

PREREQUISITE
FOR ADMISSION: TWO YEARS OF ALGEBRA

THE ASSOCIATE IN SCIENCE DEGREE:

HUMAN SERVICES: EDUCATIONAL ASSISTANT

The Educational Assistant Program provides training in basic principles of the group and individual learning process, the basic problems in learning and the development of effective interpersonal relationships with the educational staff, and the students. Close relationships with schools in the area have been developed, to give students progressively more involved classroom experiences in the roles of the Educational Assistant and to develop skills in assisting the teacher in a wide variety of classroom and supportive educational activities.

The following format is intended as a workable guide for students in course selections and program planning. The Educational Assistant Program requires 64 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introduction to Psychology (PS1101)	3
Observation of Classroom Dynamics (ED2211)	1
Human Biology (BI5510)	3
Introduction to Role of the Educational Assistant (ED2244)	3
Principles of Sociology (SO3321)	3
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Contemporary Mathematics for Elementary Teachers (MA5512)	3
Classroom Experience I (ED2212)	2
Human Growth and Development (PS1203)	3
Man and His Environment (SC5011)	3
Elective	3
	17

THIRD SEMESTER

Course	Credit
Children's Literature (EN8401)	3
Physical Education/Recreation Activities (PE2293)	1
Classroom Experience II (ED2255)	2
*Elective	3
*Elective	3
Media Workshop (CC2480)	1
+Typewriting I (TW6621)	3
	16

+OR EQUIVALENT EXPERIENCE

FOURTH SEMESTER

Course	Course
Introduction to the Creative Experience (FA7012)	3
Education Seminar (ED2262)	3
Classroom Experience III (ED2256)	3
Elective	3
Educational Psychology (PS1153)	3
	15

*Suggested Electives:

- Child Psychology
- Adolescent Psychology
- Music Appreciation
- Principles of Sociology
- Introductory Spanish I
- Marriage and Family
- Humanities: The Shape of Now
- Intro. to Library Services

THE ASSOCIATE IN SCIENCE DEGREE:

ELECTRONIC TECHNOLOGY

The Electronic Technology Program is designed primarily to equip students for employment (often as an engineering assistant) with immediately marketable skills in electronic technology. This curriculum concentrates on developing complex, interdependent electronic techniques. Heavy emphasis is put on the use of state-of-the-art devices and laboratory equipment, and the preparing of complete, analytical laboratory reports. A film program and field trips are included in the program. Recently, bachelor of arts in technology programs have been developed nation-wide, and the student who plans to continue his education at a four-year institution should consider these new programs.

The following format is intended as a workable guide for students in course selections and program planning. The Electronic Technology Program requires 72 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Algebra and Trigonometry (MA5621)	4
Electronics I - Semi-Conductors (ET6685)	4
Circuit Analysis I (ET6611)	4
Introductory Electronics (ET6113)	1
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Advanced Algebra & Trigonometry (MA5622)	4
Electronics II - Electronic Circuits (ET6686)	5
Circuit Analysis II (ET6612)	4
Graphics (ET6601)	2
	18

THIRD SEMESTER

Course	Credit
Advanced Technical Math I (MA5651)	4
Applied Physics I (PI5621)	4
Electronics III-Electronic Circuits II (ET6689)	5
Circuit Analysis III (ET6653)	4
Elective	3
	20

FOURTH SEMESTER

Course	Credit
Advanced Technical Math II (MA5652)	3
Applied Physics II (PI5622)	4
Electronics IV - Pulse and Digital (ET6682)	4
Electronics V-Measurements (ET6655)	4
Elective	3
	18

PREREQUISITE
FOR ADMISSION: TWO YEARS OF ALGEBRA

Electives must be taken from the offerings in the Division of Liberal Arts

THE ASSOCIATE IN SCIENCE DEGREE:

ENGINEERING SCIENCE

The Engineering Science Program is designed to prepare an engineering student for transfer to a four-year college or university. A core curriculum has been developed in cooperation with the American Society for Engineering Education and engineering divisions of several four-year institutions. The core curriculum allows the student an opportunity to explore various engineering fields equipping him to choose the field of specialization best suited to his interests and abilities. The fields of engineering include chemical, industrial, electrical, civil, mechanical engineering. A strong background in mathematics is required.

The following format is intended as a workable guide for students in course selections and program planning. The Engineering Science program requires 68 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Advanced Trigonometry & Analytic Geometry (MA5661)	4
**Elective	3 or 4
Graphics (ET6601)	2
Speech (EN8011)	3
	15 or 16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Engineering Physics I (PI5623)	4
Calculus I (MA5683)	4
**Elective	3
**Elective	3
	17

THIRD SEMESTER

Course	Credit
Calculus II (MA5684)	4
Engineering Physics II (PI5624)	4
Engineering Mechanics I (Statics) (ET6651)	3
*Technical Elective	4
**Elective	3
	18

FOURTH SEMESTER

Course	Credit
*Technical Elective	4
*Technical Elective	3 or 4
Engineering Physics III (PI5651)	4
*Technical Elective	4
**Elective	3
	18 or 19

*FOLLOWING IS A LIST OF SUGGESTED TECHNICAL ELECTIVES FOR VARIOUS ENGINEERING BRANCHES. THE LIST IS NOT TO BE CONSIDERED COMPLETE:

Civil Engineering: Economics I and II; Surveying I and II; Differential Equations; Scientific Programming; Chemistry I and II; Strength of Materials

Electronic/Electrical Engineering: Economics I and II; Differential Equations; Scientific Programming; Strength of Materials; Circuit Analysis I and II; Networks I and II; Engineering Mechanics II

Mechanical Engineering: Economics I and II; Engineering Mechanics II; Differential Euqations; Scientific Programming; Circuit Analysis I and II; Networks I and II; Chemistry I and II; Strength of Materials

Environmental Engineering: Economics I and II; Scientific Programming; Introductory Biology; Microbiology; Chemistry I and II

Chemical Engineering: Introductory Chemistry I and II; General Chemistry I and II; Special Topics in Chemistry; Economics I and II; Scientific Programming

**STATEMENT ON ELECTIVES: A minimum of nine semester hours of electives must be taken in humanities or social sciences. During the first semester the student should contact the college to which he plans to transfer and then select both technical and general electives to fulfill his transfer goals. Proposed technical electives from outside the above lists will be considered, but must be approved by the Chairman, Department of Engineering Science.

PREREQUISITES FOR ADMISSION:
TWO YEARS OF ALGEBRA
GEOMETRY
TRIGONOMETRY
PHYSICS OR CHEMISTRY

THE ASSOCIATE IN SCIENCE DEGREE:

ENVIRONMENTAL TECHNOLOGY

The Environmental Technology program aims at developing technologists capable of working in any of the major pollution areas, namely: air, water and solid waste disposal. The program is designed to provide a broad-based foundation in the chemical, and biological sciences, as they apply to the problems involved with processing waste, and re-cycling its by-products. This foundation will be supplemented by courses keyed to specific engineering applications.

The following format is intended as a workable guide for students in course selections and program planning. The Environmental Technology Program requires 71 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Algebra and Trigonometry (MA5621)	4
Applied Physics I (PI5621)	4
Environmental Sanitation (EV5621)	4
Graphics (ET6601)	2
	17

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Advanced Algebra & Trigonometry (MA5622)	4
Applied Physics II (PI5622)	4
Applied Microbiology (EV5622)	4
Air Resources Management (EV5624)	3
	18

THIRD SEMESTER

Course	Credit
Sanitary Chemistry I (EV5625)	4
Environmental Biology (EV5627)	4
Water Purification (EV5629)	4
Technical Writing (EN4676)	3
Elective (Non-technical)	3
	18

FOURTH SEMESTER

Course	Credit
Liquid Waste Treatment (EV5628)	4
Sanitary Chemistry II (EV5626)	4
Atomosphere Sampling & Analysis (EV5630)	4
Codes/Contracts/Specifications (EV5632)	3
Elective (Non-technical)	3
	18

PREREQUISITE
FOR ADMISSION: TWO YEARS OF ALGEBRA

THE ASSOCIATE IN SCIENCE DEGREE:

EXECUTIVE SECRETARIAL

The purpose of the Executive Secretarial Program is to train students to assume high level secretarial positions on the administrative and executive levels. The two-year curriculum offers a balanced program of academic and technical courses leading to specialization in the executive secretarial area. The college-educated secretary finds a wide variety of opportunities in every business and in every profession.

By electing a combined curriculum of secretarial science subjects and transferable liberal arts electives, students may transfer to a senior college to study for the bachelor in business teacher education or bachelor in secretarial science or office administration.

The following format is intended as a workable guide for students in course selection and program planning. The Executive Secretarial Program requires 61 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Mathematics of Business (MA5641)	3
*Shorthand I, II or III	3
*Typewriting I, II or III	3
Elective (Liberal Arts)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Elements of Accounting I (AC6691)	3
Shorthand II, III or IV	3
Typewriting II, III or IV	3
Introduction to Psychology (PS1101)	3
	15

*Entering Freshmen should choose appropriate course after consultation with counselor or departmental advisor.

THIRD SEMESTER

Course	Credit
Shorthand III, IV or V	3
Secretarial Procedures I (SL6661)	3
Typewriting III or Elective	3
Elective (Science)	3-4
Elective	3
Office Machines (SK6651)	1
	16-17

FOURTH SEMESTER

Course	Credit
Shorthand IV or V or Secretarial Science Elective	3
Business Law I (LW6651)	3
Speech (EN8011)	3
Elective (Liberal Arts)	3
Elective (Secretarial)	3
	15

THE ASSOCIATE IN SCIENCE DEGREE:

EXECUTIVE SECRETARIAL: ACCOUNTING OPTION

The Executive Secretarial Program with Accounting Option offers an intensive preparation in the field of applied accounting as well as in secretarial skills. Business offices such as insurance firms, banks, real estate offices and mercantile establishments employ secretaries with accounting background and skills. Promotional opportunities to executive and managerial positions are especially prevalent for graduation with a strong combination of secretarial and accounting skills.

The following format is intended as a workable guide for students in course selections and program planning. The Executive Secretarial: Accounting Program requires 61 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Mathematics of Business (MA5641)	3
*Shorthand I, II or III	3
*Typewriting I, II or III	3
Elective (Liberal Arts)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Elements of Accounting I (AC6691)	3
Shorthand II, III or IV	3
Typewriting II, III or IV	3
Introduction to Psychology (PS1101)	3
	15

*Entering Freshmen should choose appropriate course after consultation with counselor or departmental advisor.

THIRD SEMESTER

Course	Credit
Shorthand III, IV or V	3
Secretarial Procedures I (SL6661)	3
Typewriting III or Group A Elective	3
Elements of Accounting II (AC6692)	3
Science (Natural)	3-4
Office Machines (SK6651)	1
	16-17

FOURTH SEMESTER

Course	Credit
Shorthand IV, V or Secretarial Science Elective	3
Speech (EN8011)	3
Elements of Accounting III (AC6693)	3
Elective (Liberal Arts)	3
*Elective Group A	3
	15

*GROUP A ELECTIVES

Business Law I
Secretarial Procedures II
Machine Transcription
Cost Accounting
Tax Accounting

Personnel Management
Principles of Insurance
Principles of Real Estate
Secretarial Field Experience

THE ASSOCIATE IN SCIENCE DEGREE:

EXECUTIVE SECRETARIAL: LEGAL OPTION

The Executive Secretarial Program with Legal Option provides the opportunity for students to achieve not only superior secretarial skills to assume high-level, executive secretarial positions, but gives preparation for responsible positions in the legal field. The background necessary for a legal secretary is provided by courses in Business Law as well as courses in Legal Terminology and Law Office duties.

The following format is intended as a workable guide for students in course selections and program planning. The Executive Secretarial: Legal Program requires 61 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Mathematics of Business (MA5641)	3
*Shorthand I, II or III	3
Typewriting I, II or III	3
Introduction to Psychology (PS1101)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Elements of Accounting I (AC6691)	3
Shorthand II, III or IV	3
Typewriting II, III or IV	3
Elective (Liberal Arts)	3
	15

*Entering Freshmen should choose appropriate course after consultation with counselor or departmental advisor.

THIRD SEMESTER

Course	Credit
Shorthand III, IV or V	3
Business Law I (LW6651)	3
Legal Stenography (SH6679)	3
Secretarial Procedures I (SL6661)	3
Typewriting III or Elective	3
Office Machines (SK6651)	1
	16

FOURTH SEMESTER

Course	Credit
Legal Dictation and Transcription (SH6691)	3
Business Law II (LW6652)	3
Speech (EN8011)	3
Elective (Science)	3-4
Elective (Liberal Arts)	3
	15-16

THE ASSOCIATE IN SCIENCE DEGREE:

EXECUTIVE SECRETARIAL: MEDICAL OPTION

The Executive Secretarial Program with the Medical Option provides an intensive program of academic and secretarial science courses combined with preparation for employment in medical offices and other business, directly related to the practice of medicine. The course material emphasizes medical terminology, medical transcription and office procedures as well as secretarial skills.

The following format is intended as a workable guide for students in course selections and program planning. The Executive Secretarial Medical Program requires a total of 61 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Mathematics of Business (MA5641)	3
*Shorthand I, II or III	3
*Typewriting I, II or III	3
Introduction to Psychology (PS1101)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Elements of Accounting I (AC6691)	3
Shorthand II, III or IV	3
Typewriting II, III or IV	3
Elective (Liberal Arts)	3
	15

*Entering Freshmen should choose appropriate course after consultation with counselor or departmental advisor.

THIRD SEMESTER

Course	Credit
Shorthand III, IV or V	3
Secretarial Procedures I (SL6661)	3
Office Machines (SK6651)	1
Typewriting III or Secretarial Science Elective	3
Medical Terminology (MR6605)	3
Elective (Science)	3-4
	16-17

FOURTH SEMESTER

Course	Credit
Shorthand IV or Secretarial Science Elective	3
Medical Secretarial Procedures (SL6680)	3
Speech (EN8011)	3
Elective (Liberal Arts)	3
	15

THE ASSOCIATE IN SCIENCE DEGREE:

EXECUTIVE SECRETARIAL: TECHNICAL OPTION

The Executive Secretarial Program with Technical Option is designed for students who wish to prepare for high-level positions in the secretarial field. In addition, this option enables the student to acquire the knowledges and skills needed for employment in technical offices relating to the fields of science and engineering.

The following format is intended as a workable guide for students in course selections and program planning. The Executive Secretarial: Technical Program requires 61 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Mathematics of Business (MA5641)	3
*Shorthand I, II or III	3
*Typewriting I, II or III	3
Introduction to Psychology (PS1101)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Shorthand II, III or IV	3
Typewriting II, III or IV	3
Elements of Accounting I (AC6691)	3
Elective (Liberal Arts)	3
	15

*Entering Freshmen should choose appropriate course after consultation with counselor or departmental advisor.

THIRD SEMESTER

Course	Credit
Shorthand III, IV or V	3
Technical Stenography (SH6641)	3
Secretarial Procedures I (SL6661)	3
Office Machines (SK6651)	1
Typewriting III or Elective	3
Elective (Science)	3-4
	16-17

FOURTH SEMESTER

Course	Credit
Technical Dictation and Transcription (SH6643)	3
Technical Typewriting (TW6641)	3
Speech (EN8011)	3
Elective (Liberal Arts)	3
Elective (Secretarial)	3
	15

THE ASSOCIATE IN SCIENCE DEGREE:

FOOD SERVICE MANAGEMENT

The Food Service Management Program provides a broad academic background and business management education as well as practical and related instruction and experience in all phases of food service operation and management. Graduates will be qualified for entry management positions in the industry.

THE FOOD SERVICE MANAGEMENT PROGRAM IS OFFERED JOINTLY BY NORTHERN ESSEX COMMUNITY COLLEGE AND THE GREATER LAWRENCE REGIONAL VOCATIONAL TECHNICAL HIGH SCHOOL. ALL CLASSROOM COURSES ARE HELD ON THE COLLEGE CAMPUS. LABORATORY COURSES AND THE CLINICAL EXPERIENCE ARE LOCATED AT THE VOCATIONAL TECHNICAL HIGH SCHOOL.

The following format is intended as a workable guide for students in course selections and program planning. The Food Service Management Program requires 66 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I	3
Introductory Accounting I	3
Mathematics of Finance	3
*Introduction to the Food Service Industry	4
**Elective	3
	16

SECOND SEMESTER

Course	Credit
English Composition II	3
Introductory Accounting II	3
Principles of Marketing	3
Food Service Operations I	4
**Elective	3
	16

*Students whom the program coordinator has determined to have a basic knowledge of the food service industry must elect another course which carries at least three credit hours.

**Recommended electives: Speech, Introduction to Psychology, Principles of Sociology, Cultural Anthropology, Government or History

SUMMER SESSION

An eight-week summer work experience within the food service industry is required. As an alternative, other time periods within the college year may qualify. Acceptable completion of a report on work experience is an essential aspect in meeting this requirement. The program coordinator shall determine compliance with this requirement. In no event shall work experience prior to student enrollment in the program satisfy this requirement.

THIRD SEMESTER

Course	Credit
Business Law I	3
Elective (Science)	4
Food Service Management I	3
Elective (Liberal Arts)	3
Food Service Operations II	4
	17

FOURTH SEMESTER

Course	Credit
Survey of Economics	3
Personnel Management	3
Food Service Management II	3
Elective (Liberal Arts)	3
Food Service Operations III	4
	17

PREREQUISITE FOR ADMISSION: INTERVIEW WITH PROGRAM COORDINATOR

THE ASSOCIATE IN SCIENCE DEGREE:

LAW ENFORCEMENT

The Law Enforcement Program provides specialized training to police personnel and others, interested in preparing for careers in municipal, state, federal, private law enforcement and investigation work. The curriculum reflects the values, goals and problems of the total criminal justice system with emphasis on the technical and the educational aspects rather than training aspects. Students, upon successful completion of the program, may transfer to a four-year institution offering a baccalaureate degree in Law Enforcement. All Law Enforcement courses in this program are offered through the Division of Continuing Education and Community Services.

The following format is intended as a workable guide for students in course selections and program planning. The Law Enforcement Program requires 60 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introduction to Psychology (PS1101)	
or	3
Principles of Sociology (S03321)	
Criminal Law (LE3601)	3
Introduction to Criminal Justice (LE3603)	3
State and Local Government (GV3314)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Principles of Sociology (S03321)	
or	3
Introduction to Psychology (PS1101)	
Law Enforcement Pla-ning and Management (LE3602)	3
Introduction to Criminology (LE3604)	3
*Elective	3
	15

THIRD SEMESTER

Course	Credit
Speech (EN8011)	3
+Mathematics Elective	3
Police Operations (LE3651)	3
Criminal Investigation (LE3653)	3
*Elective	3
	15

FOURTH SEMESTER

Course	Credit
Man and His Environment (SC5011)	3
Civil Rights & Liberties (GV3315)	
or	3
Federal Government (GV3313)	
Criminal Procedures (LE3654)	3
Introduction to Criminalistics (LE3656)	3
*Elective	3
	15

+A list of mathematics electives is available at the office of Continuing Education and Community Services.

*Students planning to transfer to colleges offering the baccalaureate degree in Law Enforcement are advised to consult the course requirements of the colleges when selecting electives.

THE ASSOCIATE IN SCIENCE DEGREE:

MEDICAL RECORD TECHNOLOGY

The Medical Record Technology Program provides the student with the skills and techniques required to enter the administrative and the informational area of the health care system. The curriculum provides wide opportunity for intellectual development, through electives. The technical course emphasizes the preparation, maintenance, analysis and flow of medical information. Graduates are prepared to write an examination for National Accreditation. Students who wish to continue their education in a four-year institution should select electives which fill the transfer requirements of the institution they choose.

The following format is intended as a workable guide for students in course selections and program planning. The Medical Record Technology Program requires 63 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Anatomy & Physiology I (BI5519)	4
Medical Terminology I (MR6605)	2
Medical Record Science I (MR6601)	3
*Typewriting I or Elective	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Anatomy and Physiology II (BI5520)	4
Medical Record Science II (MR6602)	3
Medical Terminology II (MR6606)	2
+Group A Elective	3
	15

*Students able to type 45 wpm will be exempt from typewriting I

THIRD SEMESTER

Course	Credit
Medical Record Science III (MR6651)	3
Directed Practice (MR6660)	4
Social Science	3
Elective (Liberal Arts)	3
Data Processing, Introduction (CT6631)	3
Transcription I (MR6661)	1
	17

FOURTH SEMESTER

Course	Credit
Medical Record Seminar (MR6652)	1
Directed Practice II (MR6666)	3
+Group A Elective	3
Personnel Management (MG6676)	3
Elective (Liberal Arts)	3
Elective	3
Transcription II (MR6662)	1
	17

+GROUP A ELECTIVES: SELECT ONE GROUP OF COURSES	Introduction to Psychology Social Psychology	Prin. of Sociology Contemporary Social Problems

Take introductory courses during the first year.

THE ASSOCIATE IN SCIENCE DEGREE:

HUMAN SERVICES: MENTAL HEALTH TECHNOLOGY

The Mental Health Technology Program instructs students in the theory and skills needed to recognize mental health problems in individuals, in groups and in the community; to understand the structure of mental health facilities; to understand current modalities of treatment in mental health; and to assist with physical rehabilitative therapies. Carefully supervised clinical experiences are part of the program and prepare students for middle-level professional positions in various types of mental health facilities.

The following format is intended as a workable guide for students in course selections and program planning. The Mental Health Technology program requires 63 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introduction to Psychology (PS1101)	3
Introduction to Mental Health (MH2111)	3
Human Biology (BI5510)	3
Principles of Sociology (S03321)	3
Observation and Recording of Mental Health Programs (MH2133)	1
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Human Growth and Development (PS1203)	3
Man and His Environment (SC5011)	3
Theories of Personality and Behavior (MH2146)	3
Human Services in the Community	2
Mental Health Practicum I (HS2134)	2
	16

THIRD SEMESTER

Course	Credit
Abnormal Psychology (PS1751)	3
Modalities of Treatment (MH2155)	3
Mental Health Practicum II (MH2143)	3
Physical Education/Recreation Activities (PE2293)	1
*Elective	3
*Elective	3
	16

FOURTH SEMESTER

Course	Credit
Introduction to the Creative Experience (FA7012)	3
Seminar in Mental Health (MH2166)	3
*Elective	3
Mental Health Practicum III (MH2144)	6
	15

*SUGGESTED ELECTIVES:

Social Psychology
Child Psychology
Adolescent Psychology
Marriage and the Family
Introductory Spanish I
Humanities: The Shape of Now

THE ASSOCIATE IN SCIENCE DEGREE:

NURSING

The Nursing Program is designed to provide a sound education in nursing theory and nursing skills. Clinical instruction and experience in affiliated hospitals follow the highest state and national standards for excellence. Liberal arts courses are included to develop the student's best potential. Graduates are prepared to write the Massachusetts State Licensing Examinations for qualification as registered nurses. Satisfactory performance must be required in all nursing and laboratory courses. The Nursing Program is nationally accredited by the National League for Nursing.

The following format is intended as a workable guide for students in course selections and program planning. The Nursing Program requires 70 credit hours.

FIRST SEMESTER

Course	Credit
Nursing I (NS6601)	8
Anatomy and Physiology I (BI5519)	4
English Composition I (EN4401)	3
Introduction to Psychology (PS1101)	3
	18

SECOND SEMESTER

Course	Credit
Nursing II (NS6602)	8
Anatomy and Physiology II (BI5520)	4
English Composition II (EN4402)	3
Marriage and the Family (SO3331)	3
	18

THIRD SEMESTER

Course	Credit
Mental & Physical Illnesses I (NS6651)	
Principles of Sociology (SO3321)	3
Microbiology (BI5563)	4
Speech (EN8011)	3

FOURTH SEMESTER

Course	Credit
Mental & Physical Illnesses II (NS6652)	
Seminar on Nursing (NS6682)	3
*Elective (Social Science)	3

*One of the following: Child Psychology; Abnormal Psychology; Social Psychology; Adilescent Psychology; Contemporary Social Problems

PREREQUISITES FOR ADMISSION:
Four years of high school English
Two years of science (one must be a laboratory course in Chemistry)
Two years of Mathematics (at least one year of algebra)
Two years of social science

THE ASSOCIATE IN SCIENCE DEGREE: EVENING NURSING

The Evening Nursing Program is offered through the Division of Continuing Education and Community Services. The program of studies and the educational background required is identical to that of the Day Division program. Students may complete the program in a four-year schedule of part-time study. Students will consider the fundamentals of nursing during the first year. The second year is an in-depth study of maternal and child health care. Studies in the third and fourth years concentrate on medical and surgical nursing. The program requires two evenings per week of classroom and clinical study.

The Evening Nursing Program requires a strong commitment from students to complete a four-year course of part-time study. It is possible, however, for students to fulfill the liberal arts requirements outside the Division of Continuing Education and Community Services.

The Evening Nursing Program is accredited by the National League for Nursing.

THE ASSOCIATE IN SCIENCE DEGREE:

NURSING HOME/SMALL HOSPITAL ADMINISTRATION

The Nursing Home/Small Hospital Administration Program gives students training in the varied phases of institutional management including finance, facilities and equipment, planning and construction, services, health standards and record keeping. The development of a comprehensive view of health care and an understanding of the role of the nursing home in society is emphasized. The program includes an internship period in an approved institution. Graduates will be prepared to fill the requirements of the Commonwealth of Massachusetts for licensure as Nursing Home Administrators.

The following format is intended as a workable guide for students in course selection and program planning. The Nursing Home/Small Hospital Administration Program requires 65 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Introductory Accounting I (AC6601)	3
Principles of Nursing Home Administration I (NH6613)	4
Introduction to Health Services (HS6651)	2
Human Biology (BI5510)	3
	15

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Introductory Accounting II (AC6602)	3
Principles of Nursing Home Administration II (NH6614)	4
Introduction to Psychology (PS1101)	3
Elective (Liberal Arts)	3
	16

THIRD SEMESTER

Course	Credit
Internship in Nursing Home Administration (NH6671)	9
Elective (Liberal Arts)	3
Speech (EN8011)	3
Medical Terminology I (MR6605)	2
	17

FOURTH SEMESTER

Course	Credit
Advanced Internship in Nursing Home Administration (NH6672)	9
Gerontology (PS6551)	3
Elective	3
Medical Terminology II (MR6606)	2
	17

THE ASSOCIATE IN SCIENCE DEGREE:

RADIOLOGIC TECHNOLOGY

The Radiologic Technology Program prepares students with the theoretical knowledge and practical skills necessary to take the National Board Examination, sponsored by the American Registry of Radiological Technologists to qualify for employment in the allied medical specialty radiologic - or x-ray - technology. The curriculum combines classroom courses with clinical experience in selected and approved area hospitals.

The following format is intended as a workable guide for students in course selections and program planning. The Radiologic Technology Program requires 66 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Anatomy and Physiology I (BI5519)	4
Radiologic Science I (RT6511)	3
Finite Mathematics I (MA5503)	3
Radiologic Orientation I (RT6517)	4
	17

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Anatomy and Physiology II (BI5520)	4
Radiologic Science II (RT6512)	3
Finite Mathematics II (MA5504)	3
Radiologic Orientation II (RT6518)	4
	17

SUMMER PRACTICUM

Ten week summer practicum in approved area hospital

THIRD SEMESTER

Course	Credit
Introduction to Psychology (PS1101)	3
*Elective	3
Elective (Liberal Arts)	3
Radiologic Technology I (RT6551)	3
Principles of Radiologic Technology I (RT6561)	4
	16

FOURTH SEMESTER

Course	Credit
Elective (Social Science)	3
*Elective	3
Elective	3
Radiologic Technology II (RT6552)	3
Principles of Radiologic Technology II (RT6562)	4
	16

Students admitted to this program must also meet the admission requirement of an affiliated hospital in which they receive the clinical experience necessary for graduation. Contact the Office of Admissions for more information.

Hospitals:
Bon Secours - Methuen
Hale - Haverhill
Lawrence General - Lawrence

THE ASSOCIATE IN SCIENCE DEGREE:

RESPIRATORY THERAPY TECHNOLOGY

The Respiratory Therapy Technology Program provides practical skills and theoretical background in the application under medical supervision of Respiratory Therapy to patients and in the maintenance and use of the equipment and organizational facilities of affiliated hospitals. Students successfully completing the program are preapred to sit for the examination given by the American Registry of Inhalation Therapy for Registration as Respiratory Therapists.

The following format is intended as a workable guide for students in course selections and program planning. The Respiratory Therapy Technology Program requires a total of 67 credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Integrated Science I (SC5503)	3
Introduction to Respiratory Therapy Procedures (RT6602)	3
Aerosol Therapy & Pharmacology	3
Seminar I (RT6621)	4
	16

SECOND SEMESTER

Course	Credit
English Composition II (EN4402)	3
Integrated Science II (SC5504)	3
Ventilatory Management (RT6613)	3
Cardio-Pulmonary Physiology (RT6615)	3
Seminar II (RT6622)	4
	16

SUMMER SESSION

Review for Respiratory Therapy Technicians: 3 credits

THIRD SEMESTER

Course	Credit
Finite Mathematics I (MA5503)	3
Physics for Respiratory Therapists (PI5510)	4
Cardio-Pulmonary Technology (RT6616)	3
Seminar III (RT6617)	4
Elective	3
	17

FOURTH SEMESTER

Course	Credit
Directed Studies in Respiratory Therapy (RT6650)	3
Elective (Liberal Arts)	3
Respiratory Intensive Care (RT6618)	3
Seminar IV (RT6654)	4
Interdepartmental & Interpersonal Relations (RT6651)	2
	15

THE CERTIFICATE PROGRAM:

RESPIRATORY THERAPY TECHNOLOGY

A one-year program, the Respiratory Therapy Technology Certificate Program prepares students for an examination given by the American Association of Respiratory Therapy, and receipt of a certificate of competence for proficiency in performing lower level technical functions in the allied health specialty respiratory therapy. The curriculum of this program concentrates on the technical skills necessary to assist respiratory therapists and doctors in the administration of special services related to respiratory treatment.

The following format is intended as a workable guide for students in course selections and program planning. The Respiratory Therapy Technology Certificate Program requires a total of 36 completed credit hours of work.

FIRST SEMESTER

Course	Credit
English Composition I (EN4401)	3
Integrated Science I (SC5503)	3
Introduction to Respiratory Therapy Procedures (RT6601)	3
Aerosol Therapy & Pharmacology (RT6602)	3
Seminar I (RT6621)	4
	16

SECOND SEMESTER

Course	Credit
Integrated Science II (SC5504)	3
Elective (Liberal Arts)	3
Ventilatory Management (RT6613)	3
Cardio-Pulmonary Physiology (RT6615)	3
Seminar II (RT6622)	4
	16

SUMMER SESSION

Course	Credit
Seminar for Technicians (RT6607)	4
	4

Required five-week term of clinical experience under medical supervision.

THE DEPARTMENT OF PHYSICAL EDUCATION:

SPORT, LEISURE STUDIES AND OUTDOOR EDUCATION

The physical education plan provides a wide variety of physical and recreational activities. Activities which have a carry-over merit for leisure are emphasized, as well as outdoor recreational activities with a lifetime value. Students are motivated to understand the importance of physical fitness, and to assume responsibility for including physical activity in their plans for living.

Physical education academic policies at Northern Essex are:

There is no physical education requirement

All physical education courses are elective courses

Physical education courses are co-educational unless otherwise stated in the course description

Physical education courses carry one academic credit for every eight weeks

Physical education courses are graded on a PASS/NON-PASS basis

Physical education credits are not computed in the quality point average

Individual and lifetime sports courses include:

Archery
Badminton
Basketball
Fencing
Field Hockey
Golf
Gymnastics
Folk and Square Dancing
Fundamentals of Movement
Karate
Modern Dance
Physical Conditioning (Men)
Self-Defense
Senior Lifesaving
Slimnastics (Women)
Tennis
Volleyball
Weight Lifting
Wrestling

Outdoor recreational and leisure time activities courses include:

Backpacking
Bowling
Campcraft
Canoeing
Fly Fishing/Spin Casting
Scuba Diving
Swimming
Water Safety

THE 'O' PROGRAM

Students with good high school grades and high achievement test scores are almost automatically accepted for admission into college.

Other applicants present records which discourage acceptance. Often their academic confidence has been undermined by successive failures in high school which led them to a climate of "no-expectations". Sometimes these students were unable, because of health or personal problems, to achieve in high school. Some of them decided too late to prepare properly for college. And, often these students simply needed time to mature before settling down to productive study.

What happens to these slow starters? Has their chance for a college career perished? No-more-education is a tough fact of life for these students if they think attending college is a process which absolutely must lead directly from a high school classroom to full-time college matriculation.

There are other alternatives. The 'O' (for opportunity) Program at Northern Essex is one such alternative. This program is essentially a second chance for a student to show that he can work at the college level.

Students interested in the 'O' Program meet with the staff of the College's Admissions Office to discuss their interests and abilities - and their weaknesses. An educational plan is evolved. Courses designed to strengthen existing weaknesses will be assigned. Often a class in Pre-College Mathematics or Reading Strategies is indicated: and usually two courses are assigned.

Students may register for 'O' Program assigned courses in the Summer, Fall or Spring sessions in either the Day Division or the Division of Continuing Education. Students who complete assigned courses with an average grade of "C" or higher will be admitted to Northern Essex as full-time students in a degree program.

Students who feel they need even more time before attempting full-time College work may continue their studies in the Division of Continuing Education. Courses successfully completed in this division will be credited toward a degree program, wherever appropriate, when the student decides to matriculate.

All of the resources of the College -- counseling, close contact with teachers trained to assist students, financial aid, developmental courses, student activities -- are available to 'O' Program students.

Many students, who might not otherwise have qualified for acceptance into a college, have matriculated at Northern Essex after participating in the 'O' Program

OCCUPATIONAL OPPORTUNITY EXPLORATION PROGRAM

The Occupational Opportunity Exploration Program (OOEP) is designed to create occupational opportunity for individuals by helping disadvantaged students overcome educational, cultural and socio-economic deficiencies so that they will be better equipped to choose, prepare for and enter a relevant occupational area.

OOEP provides students without high school diplomas counseling and occupational guidance, while at the same time assisting these individuals to acquire the high school equivalency certificate by training for General Educational Development GED) testing.

OOEP provides disadvantaged students with an opportunity to enter occupational curricula at Northern Essex. The program offers financial, educational and counseling support to these students while at Northern Essex.

OOEP programming includes creation of an outreach center in order to recruit students for occupational programs at the college. This center will exist to encourage students to finish high school by offering special interest courses, group dynamics sessions, job information, job training liaison and job placement services. The center will encourage students to enter the GED preparation program, the Discovery Program or occupational programs at Northern Essex.

OOEP is designing and implementing a GED preparation program to provide vocational counseling, personal counseling, developmental English and Mathematics. The program focuses on individual development as well as successful completion of GED testing.

OOEP is designing and implementing an occupational information program for disadvantaged students in the outreach center, the GED preparation program and the Discovery Program. OOEP will create a job training liaison and job placement services for these students.

THE DISCOVERY PROGRAM

Discovery is a one-semester, college level program now offered at Northern Essex Community College to people looking for new choices in life, a better way to learn, and a way out of an educational dead-end. Discovery students earn college credit and help design a successful learning plan suited to their needs.

Discovery students come from many backgrounds, different educational experiences and different age groups. Yet, they have important values in common:

- they want something better in life
- they want to feel productive
- they want to gain more confidence
- they want to extend their learning abilities
- they want new, exciting, educational experiences

Discovery students have an interview at the office of Admissions to discuss their basic needs and problems in education and to consider possible ways in which Discovery can meet these needs. The usual entrance requirements of the college may be waived, and a high school diploma is not always necessary in Discovery. The student needs a willingness to get involved with the program and a willingness to take part in what's happening and how it happens. Discovery has funds to cover tuition or books or living expenses or all of these for students who qualify under federal income guidelines.

Discovery provides a developmental opportunity to students who are unsatisfactorily prepared for the courses of study offered at the college. Curriculum concentrates on developmental reading, mathematics, science and the humanities. Development of interest and achievement in these varied areas in the central goal of the program. Material contained in the four program courses is integrated and interrelated and instruction methods are dictated by the requirements of the course.

Discovery students use a wide variety of learning tools during the program. Some of these special opportunities are:

- student-centered courses
- programmed materials
- class discussions
- audio-visual materials
- learning laboratories
- individual conferences
- tutorial sessions
- directed study
- films
- seminars
- team teaching
- small classes
- field trips
- guest lecturers

Learning problems are worked out as they develop, and students and teachers work together to evaluate and improve the program.

Discovery students are concerned with all the different parts man plays in the world. Courses in reading and study techniques, science and the humanities, communications, and the fine arts are integrated and center around these human roles:

- Man and the Cosmos
- Biological Man
- Man in Society
- Man the Politician
- Man and His Environment

Mathematics is studied separately and each student starts at his own level of understanding and progresses as far as he can go during the program. The Discovery Program stresses individual pace. The student is helped to discover for himself his own strengths and limitations. He fits language into his work and world and sees how verbal skills affect his own feelings about the world, and the image he presents to the world. He learns to view the political, social and physical environment as man-centered and discovers how to fit himself into this picture - and how to make a decision about his future plans for education.

Discovery students who have successfully completed the program have changed their attitudes about themselves and about their chances for success in education. Many graduates of Discovery, using the personal and occupational guidance built into the program, have selected career areas and are now students in a wide variety of the college's associate degree programs. Discovery is a constantly changing program working to adjust quickly and properly to the needs of its students.

The schedule of courses offered
in a given semester is determined
at the discretion of the college.

AC6601 Introductory Accounting I

A one-semester course; three credit hours. The basic concepts of accounting and uses of accounting data. Topics include the theory of debit and credit, use of journals and ledgers, analysis and recording of financial transactions, the accounting cycle, deferrals, accruals, inventories, fixed assets, voucher system and payroll. Four class hours per week.

AC6602 Introductory Accounting II

A one-semester course; three credit hours. A continuation of AC6601. Emphasis on accounting for partnerships, corporations, basic cost accounting and cost relationships, and special reports and statements. Four class hours per week.

Prerequisite: AC6601

AC6651 Intermediate Accounting I

A one-semester course; three credit hours. The detailed study of accounting theory and practice as it pertains to the accounting process, cash, receivables, inventories and current liabilities. Three class hours per week.

Prerequisite: AC6602

AC6652 Intermediate Accounting II

A one-semester course; three credit hours. A continuation of AC6651 with emphasis on non-current assets and liabilities, stockholders equity, and various statements. Three class hours per week.

Prerequisite: AC6651

AC6661 Managerial Accounting

A one-semester course; three credit hours. A study of the analysis of accounting data, rather than the collecting and recording function. The use of accounting as a basis for managerial supervision and planning. Three class hours per week.

Prerequisite: AC6602

AC6671 Cost Accounting

A one-semester course; three credit hours. An intensive study of cost methods; costing for materials, labor and factory overhead. Job-order process, direct costing and the use of standards. Three class hours per week.

Prerequisite AC6602

AC6682 Tax Accounting

A one-semester course; three credit hours. An introduction to the principles of federal taxation with emphasis on history of income taxation, gross income, deductions, exemptions, accounting records, preparation and filing of tax returns. Three class hours per week.

Prerequisite: AC6602

AC6691 Elements of Accounting I

A one-semester course; three credit hours. Study of current accounting terminology. Introduction to the basic principles and practices of accounting. Topics include: double-entry system and the accounting equation, journals, ledgers, trial balances, work sheets, financial statements, cash and banking procedures, and payroll records. Four class hours per week.

AC6692 Elements of Accounting II

A one-semester course; three credit hours. Study of subsidiary ledgers, the voucher system, inventories, receivables and fixed assets. Introduction to accounting for partnerships and corporations. Opportunity for extensive practice through use of long problems and practice sets. Four class hours per week.

AC6693 Elements of Accounting III

A one-semester course; three credit hours. Intensive study of the voucher system, corporate organization and accounting, manufacturing accounts, budgeting and internal reporting, interim statements, and analysis of financial statements. Four class hours per week.

Prerequisite: AC6692 or equivalent.

*BK6601 Principles of Bank Operations

A one-semester course; three credit hours. Survey of banking's relationship to the total economy and the functional relationships of departments within the bank. Develops the framework for more specialized study of the banking institution. Three class hours per week.

*BK6602 Savings and Time Deposit Banking

A one-semester course; three credit hours. A fundamental study of the historical development and economic function of savings institutions and the savings process. Three class hours per week.

*Courses designated BK (Banking) are offered through the Division of Continuing Education. They are offered primarily for members of the American Institute of Banking, but may be elected by other students upon prior approval.

*BK6623 Installment Credit

A one-semester course; three credit hours. Study of the installment credit function; credit information, lending, collections and other procedures as well as inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. Three class hours per week.

*BK6624 Trust Department Services

A one-semester course; three credit hours. Study of trust services, responsibilities of executors and administrators, analysis of the structure of trusts, alternative forms and the general and investment responsibilities of trustees. Three class hours per week.

*BK6651 Analyzing Financial Statements

A one-semester course; three credit hours. Basic considerations in financial statement analysis, basic financial ratios, analysis of working capital, and other items. Three class hours per week.

*BK6652 Bank Letters and Reports

A one-semester course; three credit hours. A review of the forms of letter and report writing as they apply to public relations as well as emphasize fundamental principles underlying modern correspondence. Three class hours per week.

*BK6653 Bank Public Relations and Marketing

A one-semester course; three credit hours. A study of the public relations and marketing aspects of banking as they would apply to relations with customers, the community, and others. Three class hours per week.

*BK6654 Fundamentals of Bank Data Processing

A one-semester course; three credit hours. A non-technical study of electronic data processing as applied to banks. A survey course. Three class hours per week.

*BK6611 Money and Banking

A one-semester course; three credit hours. The practical aspects of money and banking; emphasis is placed on such problems as economic stabilization, types of spending, the role of gold, limitations of central bank control, government fiscal policy, balance of payments and foreign exchange showing their repercussions on the banking industry in affecting yield curves and the structuring of portfolios. Three class hours per week.

*Courses designated BK (Banking) are offered through the Division of Continuing Education. They are offered primarily for members of the American Institute of Banking, but may be elected by other students upon prior approval.

*BK6612 Bank Management

A one-semester course; three credit hours. A study of trends in the philosophy and practice of management. Some use of case study. Three class hours per week.

*BK6621 Credit Administration

A one-semester course; three credit hours. Course concerns itself with a statement and a discussion of factors influencing and determining loan policy; methods of credit investigation and analysis, credit techniques, specific credit problems, and regular as well as unusual types of loans. Three class hours per week.

*BK6622 Home Mortgage Lending

A one-semester course; three credit hours. Examination of mortgage credit in the United States and the structure of the mortgage market. An analysis of the management considerations in mortgage lending and portfolio management. Three class hours per week.

EC3311 Principles of Economics I

A one-semester course; three credit hours. Introduction to macro-economic analysis and policy. An examination of the foundation and nature of economic principles as they apply to national output, money and banking, and monetary and fiscal policy. Course also focuses upon the problems of employment, inflation, economic growth as illuminated by modern national income analysis. Three class hours per week.

EC3312 Principles of Economics II

A one-semester course; three credit hours. Introduction to micro-economics. This semester centers upon the functioning of individual markets and their effectiveness for resource allocation. Includes price and production theory, the distribution of income, comparative economic systems, international trade, and the theory of household behavior. Three class hours per week.

Prerequisite: EC3311

EC3652 Survey of Economics

A one-semester course; three credit hours. A non-technical survey of current economic problems. Background of economic concepts and terminology. Some focus on comparative economic systems. Not recommended for transfer students. Three class hours per week.

*Courses designated BK (Banking) are offered through the Division of Continuing Education. They are offered primarily for members of the American Institute of Banking, but may be elected by other students upon prior approval.

FI3652 Business Finance

A one-semester course; three credit hours. Principles and practices of business finance. Short and long term sources of funds, management of financial assets, capital requirements, alternative forms of financing, and the capital market. Some use of case study method. Three class hours per week.

FI6651 Principles of Insurance

A one-semester course; three credit hours. Study of the principles of risk management and how insurance handles risk. The concept of risk management is outlined. Insurance coverages for the following are studied: property, liability, life and health. Three class hours per week.

FI6653 Credits and Collections

A one-semester course; three credit hours. Study of the credit function in business. Subjects covered include the credit risk, credit instruments, consumer credit, sources of credit information, retail credit and collection methods. Three class hours per week.

FI6663 Principles of Real Estate

A one-semester course; three credit hours. Survey of the various areas of real estate practice and the principles involved in the purchase, valuation, and selling of real estate. Three class hours per week.

LW6651 Business Law I

A one-semester course; three credit hours. Introduction to law and its development. The law of contracts and its elements. The law of agency and its application to business. Three class hours per week.

LW6652 Business Law II

A one-semester course; three credit hours. A continuation of LW6651, developing a basic understanding and application of the Uniform Commercial Code involving negotiable instruments, sales, banking, partnerships, corporations, and estates and trusts. Three class hours per week.

Prerequisite: LW6651

MA5613 Mathematics of Finance

A one-semester course; three credit hours. The mathematics used in business transactions. Three class hours per week.

MA5671 Business Statistics

A one-semester course; three credit hours. The use of statistical methods in the management of business. Three class hours per week.

MG6651 Industrial Management

A one-semester course; three credit hours. Overview of manufacturing operations. All aspects of the production function are discussed: capital investment, assembly-line operation, plant location, product design, time study, purchasing and other topics. Three class hours per week.

MG6652 Time and Motion Study

A one-semester course; three credit hours. The course deals with the application of methods improvement and work measurement techniques. The use of the stop watch, work sampling and operations charts in terms of application to standard systems. Three class hours per week.

MG6653 Industrial Purchasing

A one-semester course; three credit hours. The course provides a comprehensive knowledge of modern purchasing practices. It combines analysis of the fundamental purchasing principles with analytical descriptions of the latest developments and techniques. The fundamentals of the buying process are related to the new expanded role of the purchasing department.

The student is given the opportunity to test his understanding of what has been covered by the inclusion of case problems drawn from contemporary industry. Three class hours per week.

MG6676 Personnel Management

A one-semester course; three credit hours. Principles and human relations problems involved in the administration of personnel. Topics include job analysis and specification, recruitment, selection and training, job evaluation, supervision of employees, and salary and wage administration and labor relations. Three class hours per week.

MK6673 Principles of Marketing

A one-semester course; three credit hours. Introduction to marketing with emphasis placed on the basic functions and the channels of distribution. The consumer, the market area, and the problems and policies of pricing the product. Three class hours per week.

MK6679 Advertising

A one-semester course; three credit hours. Analysis of buying motives and the development of various advertising appeals. Planning, budgeting and testing of phases of the program and the several advertising media. Three class hours per week.

MK6680 Retailing

A one-semester course; three credit hours. Basic elements of retail merchandising. Types and organization of retail outlets. Buying, pricing, dollar and unit stock control, sales promotion, and expense budgets. Three class hours per week.

MK6681 Salesmanship

A one-semester course; three credit hours. Fundamentals of salesmanship by studying the behavioral aspects of the persuasion process; a systematic approach to selling which the student can use to develop the techniques which fit his own personality and particular situation. Three class hours per week.

CHILD CARE

CC2201 Introduction to Early Childhood Education

A one-semester course; three credit hours. This course provides the student with an understanding of the child's experience in the school as it relates to his total development. It raises particular problems associated with curriculum planning and helps to develop criteria for evaluating a program for young children. Three class hours per week.

CC2112 Problems in Early Childhood Education

A one-semester course; three credit hours. A sociological-psychological study of factors leading to educational success in representative compensatory programs for the young child. This course centers around the role of the family and cultural background as they relate to the development of school skills. Three class hours per week.

CC2264 Seminar in the Philosophy of Child Care

A one-semester course; three credit hours. The student studies varied models of child care programs and the theories which they illustrate. The second half of the course involves clinical experiences in which the student explores in depth a model of a child care program located in the Merrimack Valley, studies the program in operation, and writes a research paper based upon his findings. Three class hours per week.

CC2311 Observation and Recording of Child Behavior

A one-semester course; one credit hour. A preliminary study of child behavior in varied institutional settings. Defined areas of child behavior will be observed and recorded. These observations will be discussed every other week at seminars. Two laboratory hours per week.

CC2312 Laboratory Experience in Program Development

A one-semester course; two credit hours. Skills and concepts of learning acquired in Children's Literature and Introduction to the Creative Experience will be applied in selected centers for children. The student will play an active role in setting up projects, and working with the young child in the areas of art, music, crafts and literature. Four class hours and four laboratory hours per week.

Prerequisite: EN8401 and present enrollment in FA7012

CC2353 Laboratory in Child Care Education I

A one-semester course; three credit hours. The student will be actively involved in the varied activities which are part of all child education programs. Not only will the student work with arts, crafts, music and literature; he will also aid the supervising personnel in leading recreational activities, will work with the individual children in defined problem areas and will record his experiences for seminars held every other week. Nine hours per week clinical experience.

Prerequisite: CC2201 and present enrollment in CC2112

CC2354 Laboratory in Child Care Education II

A one-semester course; six credit hours. The student will have greater responsibilities in his relationship with programs for the young child. Sixteen hours of practical experience each week will be spent within a defined institutional center. At the completion of the semester, the student should be competent to work in all areas normally associated with the para-professional in child care programs. Eighteen hours per week clinical experience.

Prerequisite: CC2353

PS1153 Educational Psychology

A one-semester course; three credit hours. Major psychological factors in human development related to problems in the school situation; teacher's role in school motivation; conceptual learning, problem solving and the development of emotional behavior, attitudes and values; learning of skills; retention and transfer; and measurement of student abilities and achievement. Recommended for students contemplating future study in education or psychology. Three class hours per week.

CC2480 Media Workshop

A one-semester course; one credit hour. An introduction to the use of the media in child care programs. Films, filmstrips, tapes, records, and television will be explored as they relate to education and entertainment in child care situations. Each student will be required to design one activity in which the media will be used as the basis of a learning experience. In addition, the student will become familiar with the operation of film and slide projectors, tape recorders, and closed-circuit television. One class hour per week.

EN8401 Children's Literature

A one-semester course; three credit hours. An introductory course in children's books. Considers the history of children's literature and contemporary authors. Study of criteria of good literature, children's interests and developmental stages related to books, various genre of children's literature, children's book awards, illustrators and authors, and reference courses. Three class hours per week.

FA7012 Introduction to the Creative Experience

A one-semester course; three credit hours. This course is designed to introduce methods, materials and meaning of the arts to those who are involved in programs with the pre-school child. It is the way to explore the world through non-verbal experiences which are personal to each child. Emphasis is placed on spontaneity, imagination, invention and flexibility of each student. Three class hours per week.

MA0500 Developmental Pre-school Mathematics

A one-semester course; three credit hours. The course is designed to train the student to know what basic intuitive mathematical concepts are at the foundation of a pre-school child's mathematical development. He is further trained in how to enhance and encourage these concepts in unstructured and informal ways. He is shown how to observe the child's activities for opportunities to strengthen the child's intuitive mathematical base. He is further given a fund of activities for the child which usually lead to opportunities for reinforcing the child's intuitive mathematical background.

PE2293 Physical Education and Recreation Activities

A one-semester course; one credit hour. Study of and participation in games and exercises designed to increase motor ability and group interaction of the young child. Two class hours per week.

CE6601 Surveying I

A one-semester course; four credit hours. The course is designed to give the student proficiency in the use of surveying instruments. Emphasis is placed on taping, tape corrections, elevation measurements and corrections, angular measurements and adjustments. Neat note taking is stressed. Three class and three laboratory hours per week.

CE6602 Surveying II

A one-semester course; four credit hours. The course is designed to give the student proficiency in the calculations and measurements for traverses, circular curves, vertical curves, areas, stadia, and topographic surveys. Use of modern instruments and calculation techniques are stressed. Three class and three laboratory hours per week.

Prerequisite: MA5621, and CE6601 or equivalent experience

CE6603 Advanced Surveying

A one-semester course; four credit hours. The course is designed to give the student advanced, specialized surveying experience in construction surveying, land boundary surveying, instrument adjustment, Meridian determination, photogrammetry, aerial mapping, introduction to court procedures. Emphasis is placed on highway layout, profiles, cross sections, utility layout, volume estimation, boundary determination, boundary layout, subdivisions, using all available information efficiently. Three class and three laboratory hours per week.

Prerequisite: CE6602 or equivalent

CE6612 Drawing for Civil Technology

A one-semester course; one credit hour. A course designed to give the student a good knowledge of some of the specialized drafting techniques required in the practice of Civil Technology. Topics covered are plan drawing, cross section drawing, profile drawing, inking techniques, printing techniques, etc. Three laboratory hours per week.

Prerequisite: CE6601

CE6651 Mechanics for Civil Technology

A one-semester course; three credit hours. Course is designed to give the student a knowledge of statics and dynamics as applied to civil technology problems. Analysis of forces acting on bodies both at rest and in motion are studied in detail. Three class hours per week.

Prerequisite: PI5621 and PI5622

CE6653 Strength of Materials

A one-semester course; four credit hours. The course is designed to acquaint the student with the relationship between externally applied forces and the internally induced stresses in various types of structural members and parts, such as bolts, rivets, shafts, pressure tanks, beam and columns. Also covered is the relationship between the externally applied forces and the resulting deformations. Particular attention is given to beam bending, column loadings, tension in shafts, centroids and moment of inertias, combined stresses in structural elements. Three class hours and three laboratory hours per week.

Prerequisite: CE6651 or equivalent

CE6654 Structural Analysis and Design

A one-semester course; three credit hours. The course includes the fundamental principles involved in the design of steel and reinforced concrete structures. The student learns the basic analysis and design techniques for beams, columns, walls, footings, retaining walls, floor systems and flat slabs as specified by modern building codes. Fundamentals of timber design are also covered. Three class hours per week.

Prerequisite: CE6653 or equivalent

CE6663 Highway Engineering

A one-semester course; three credit hours. The course is designed to give the student a basic understanding of the problems involved in modern highways. The course covers the following areas of concern: highway planning and economy, interrelationship between driver, vehicle, characteristics and highway design, subgrade design and construction, construction techniques of base courses and pavements, and attention will be given to various pavement choices including cement-concrete and bituminous asphalt. Three class hours per week.

Prerequisite: CE6601 and CE6602

CE6671 Sanitary Engineering

A one-semester course; three credit hours. The course is designed to give the student a knowledge of the problems and solutions of water supply and sewerage. The course considers the problems of water from rainfall, through storage, storm drainage, hydraulics, distribution and treatment of drainage water, collection, disposal and treatment of sanitary sewage. Water and storm drainage and sanitary sewerage systems design is stressed. Three class hours per week.

CE6672 Soil Mechanics

A one-semester course; four credit hours. The course is designed to give the student a basic knowledge of the problems of soil. The course teaches the student to understand and evaluate the properties of soil materials. Lectures are reinforeced by the use of a soil testing laboratory which enables the student to develop a thorough knowledge of soil testing techniques and proper use of experimental data. The course also deals with the topics of the interreaction of soils with groundwater; consolidation of soil and settlement of structures; and the bearing capacity of soil under foundations. Three class hours per week and three laboratory hours per week.

CT6682 Computer Applications to Civil Technology Problems

A one-semester course; four credit hours. The course is designed to give the student a knowledge of the computer solutions to the great quantities of calculations that are necessary in practice. Basic computer operation and programming techniques are covered with emphasis on FORTRAN and COGO languages. Three class hours and three laboratory hours per week.

Prerequisite: MA5621 and MA5622

ET6601 Graphics

A one-semester course; two credit hours. This course stresses communication by graphical or pictorial means. Lettering, graphics sketching, orthographic projection, auxiliary views, dimensioning, descriptive geometry principles are topics covered. Neatness is emphasized throughout. One class hour and one two-hour laboratory period per week.

MA5621 Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. A complete review of algebra. Introduction to trigonometry. Three class hours and two one-hour problem-solving sessions per week.

MA5622 Advanced Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. Emphasis on the use of algebra, trigonometry and graphics in the solution of technical problems. An introduction to the concepts of rate of change and summation of areas. Three class hours and two one-hour problem-solving sessions per week.

Prerequisite: MA5621

MA5651 Advanced Technical Mathematics I

A one-semester course; four credit hours. For students enrolled in a technology curriculum. The course covers basic analytical geometry, differentiation, integration, and the mathematics of transcendental functions, with applications to maximum-minimum, related rates, acceleration, area, volume, and curve sketching problems. Four class hours per week.

Prerequisite: MA5622

MA5652 Advanced Technical Mathematics II

A one-semester course; three credit hours. For students enrolled in a technology curriculum. The course covers the calculus of trigonometric, exponential, logarithmic, hyperbolic, and inverse functions. The course also covers power series expansion, and special integration techniques including integration by parts, trigonometric substitution, partial fraction expansion, etc. Three class hours per week.

Prerequisite: MA5651 or equivalent

PI5621 Applied Physics I

A one-semester course; four credit hours. Fundamentals of mechanical motion using algebra and graphical solutions. Principles of heat transfer, wave motion, vibration and sound. Basic fluid mechanics. Three class hours and one three-hour laboratory period per week.

PI5622 Applied Physics II

A one-semester course; four credit hours. Fundamentals of electricity, magnetism, and electrochemical effects. Electromagnetic induction and magnetic properties. Introduction to physical optics, lenses, mirrors and optical instruments. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5621

EN0101 Journalism I

A one-semester course; three credit hours. To be offered both semesters. The course will analyze and compare current newspapers and magazines, and will emphasize newswriting, reporting, copy editing, and layout. Knowledge of typing is recommended. Three class hours per week.

EN0121 Creative Writing

A one-semester course; three credit hours. A seminar in writing beyond the freshman level, especially recommended for English majors, prospective teachers, and students who have exempted freshman English. The art of various types of imaginative literature is examined as a guide to the development of the individual style, with emphasis on writing practice and group evaluation. Three class hours per week.

Prerequisite: EN4401 and EN4402 or permission of the instructor

EN0401 Reading Strategies

A one-semester course; three credit hours. Designed to expose students to effective reading and study techniques. Emphasis is placed on understanding the printed word in various forms - phrases, sentences, paragraphs, and whole selections. Some of the areas explored include concepts such as main ideas, significant details, vocabulary expansion and idea relationships like cause and effect, comparison-contrast, explanation, etc. The application of processes such as association, visualization, concentration and repetition is stressed to facilitate interpretation and memory of passages. Critical reading skills and organized approaches to study are also considered. Diagnostic testing is done at the beginning and end of the course. Three class hours per week.

EN1274 Intensive English as a Second Language

A one-semester course; no credit hours. Intensive study of oral and written English for foreign-born area residents. Aimed at building command of essential English grammar, vocabulary, and pronounciation, and at familiarizing students with American culture. Multi-level, semi-individualized instruction, with greater emphasis on reading and writing for students desiring to do college level studies, and on conversation for students preparing for immediate employment. Out of class assignments include field trips to local American homes and businesses, participation in one extra-curricular activity, and either directed projects in the community or auditing of other college classes, to immerse students as fully as possible in an English-speaking environment. Completion of high school is not a prerequisite for this course. Non-native students enrolled full-time in the college may continue to participate in part or all of the course, as needed, beyond their first semester, by arrangement with the instructor. Other foreign-born area residents may register for this course through the Division of Continuing Education. Financial aid is available to students enrolled in this course, based on the need of the student. Students enrolled in this course for the first time will be considered full time students at the college. Fifteen class hours per week (Monday-Friday, 9 A.M. to 12 noon) plus an equivalent amount of time on special out of class assignments each week.

EN2455 The Art of the Movies

A one-semester course; three credit hours. This course will attempt to foster critical taste in film. Students will explore the role of film in contemporary society by viewing and discussing: documentaries, experimental films, impressionistic films, animated films, and commercial films. Discussion and analysis will acquaint the student with the interrelationship of film technique and content. Three class hours per week.

EN3011 Reading Improvement

A one-semester course; no credit hours. This course is designed to aid students in the overall improvement of their verbal skills. Special attention will be paid to increasing skill in speed and comprehension of reading. The course is structured to provide a flexible and individualized approach to reading skill improvement, vocabulary building and critical reading. Three class hours per week.

EN4401-EN4402 English Composition I and II

A two-semester course; three credit hours per semester. Designed to develop lucid, effective written expression. Grammar, syntax and punctuation are reviewed. Stressed are special techniques in expression and the development of logical thinking to enable the student to organize, outline and express his thoughts in written form at various levels. Required of all students. Three class hours per week.

EN4403 Advanced Composition

A one-semester course; three credit hours. A seminar in writing beyond the freshman level, designed for students seriously interested in writing. Types of non-fiction and fiction will be examined as guides in the development of writing style. Three class hours per week.

Prerequisite: EN4401 and EN4402 or permission of the instructor

EN8011 Speech

A one-semester course; three credit hours. Instruction and practice in skills essential to effective oral communication. The course includes organization, presentation and audience analysis as well as instruction in diction, volume and posture. Three class hours per week.

EN8012 Oral Interpretation

A one-semester course; three credit hours. Designed to present the various techniques in effective oral reading. Stress is placed on vocal flexibility, imagery, and emotional involvement. A wide range of dramatic literature will be used. Three class hours per week.

Prerequisite: EN8011 and permission of the instructor

EN8013 Skill and Motivation Development

A one-semester course; no credit hours. A preliminary course, offered in the Summer Session, designed to increase an incoming student's awareness of the sk and mechanics necessary for the college experience. The course meets five day a week during Summer Session.

EN8401 Children's Literature

A one-semester course; three credit hours. An introductory course in children's books. Considers the history of children's literature and contemporary authors. Study of criteria of good literature, children's interests and developmental stages related to books, various genre of children's literature, children's book awards, illustrators and authors, and reference courses. Three class hours per week.

EN8801 The Bible as Literature

A one-semester course; three credit hours. Designed to capture the atmosphere and literary qualities and techniques of the Hebrew and Greek scriptures in translation, it would include reading and analysis of the several genres, as poetry, drama, short story, hortatory essay, and others. Three class hours per week.

EN8851-EN8852 Masters of American Literature I and II

A two-semester course; three credit hours per semester. A study of the most important American novelists, poets and belle-lettrists from 1850 to the present. The emphasis is on the reading of works in their entirety, with depth of reading as well as catholicity.being the objective. Typical authors who will form the subject of the course: Frost, Eliot, Hemingway, Faulkner, Salinger, Sinclair Lewis, Dreiser, Crane, Mark Twain, Melville, and Hawthorne. Three class hours per week.

EN8853-EN8854 Masters of British Literature I and II

A two-semester course; three credit hours per semester. A study of the major works of selected English poets, dramatists and prose writers, with their historical and literary background, will be directed through lectures and prescribed reading, with special exercises in interpretation and criticism. Three class hours per week.

EN8861-EN8862 Masters of Western Literature I and II

A two-semester course; three credit hours per semester. An analysis of the literary masterpieces of the Western Tradition, emphasizing the literary philosophy and art of each author. Authors to be considered include Homer, Sophocles, Aeschylus, Plato, Dante, Strindberg, Ibsen, Cervantes, Chekhov, Gogol, Hawthorne, Melville. Variations in selections and authors occur from year to year. Three class hours per week.

EN8865 The Black Experience

A one-semester course; three credit hours. A study of American Black literature that will include a few representative novels and autobiographies and a sample of short stories and poems, mostly by Black writers, to better understand the relationship between literature and life. Three class hours per week.

EN8871 The English Novel

A one-semester course; three credit hours. Reading and discussion of great representative novels from 1740 to the present. Readings to be selected by the instructor. Three class hours per week.

EN8881 The American Novel

A one-semester course; three credit hours. Reading and discussion of significant novels of the nineteenth and twentieth centuries. Included among the authors considered are: Twain, Melville, Hawthorne, Crane, Dreiser, Henry James, Fitzgerald, Steinbeck, Anderson, Hemingway, Salinger, Bellow, Faulkner, Flannery O'Connor. Analysis of form and philosophy. Three class hours per week.

EN8883 Women in Literature and Life

A one-semester course; three credit hours. A study of literary and historical accounts of women in courtly society (late Middle Ages through Early Renaissance) and in democratic society (1890-1970) for the purpose of tracing the cultural influence of an idea, the idea of courtly love, on literature and life. One one-hour lecture and one two-hour seminar discussion per week.

EN8884 Twentieth Century Woman in Film and Art

A one semester course; three credit hours. Offers the student an examination of the multiple views of woman as seen through the arts of this century. Looking at examples from poetry, literature, film, sculpture and painting, the student will be exposed to the varied attitudes toward self, beauty, socialization, exploitation, and destiny of the twentieth century woman. The course is to be offered on an alternate basis with "Women in Literature and Life") It is suggested that the student take "Women in Literature and Life" prior to this course, but it is not mandatory. One one-hour and one two-hour class per week.

EN8891 Introduction to Poetry

A one-semester course; three credit hours. Designed to acquaint the student with the various forms and scope of poetry. Among the poets considered are Marvell, Shakespeare, Byron, Keats, Dickinson, Poe, Eliot, Pound, Plath, et al. This course is to be an overview of the concept of poetry. Three class hours per week.

EN8893 The Contemporary Novel

A one-semester course; three credit hours. Readings in British, American, French, German, Russian and South American fiction with special emphasis on philosophical and arch typal linkage. Three class hours per week.

EN8999 Special Topics in English

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor

CT6601 Fundamentals of Digital Logic

A one-semester course; three credit hours. The evolution of data processing or automatic computation. The mechanics of automatic computation including number systems, logic, codes, arithmetic operations, and computer organizations are covered in detail. Three one-hour lectures per week.

CT6611 Business Programming I

A one-semester course; four credit hours. Unit record equipment is studied as an off-lines aid to the use of a computer. Introduction to business programming through Report Program Generator coding. Three one-hour lectures and one three-hour laboratory period per week.

CT6652 Business Programming II

A one-semester course; four credit hours. A detailed study of COBOL and/or equivalent programming language with applications. Three one-hour lectures and one three-hour laboratory period per week.

CT6622 Scientific Programming

A one-semester course; four credit hours. A comprehensive study of FORTRAN and/or equivalent programming language with related mathematics. Three one-hour lectures and one three-hour laboratory period per week.

CT6651 Assembly Language Programming

A one-semester course; four credit hours. A thorough study of the absolute machine language and the assembler for the computer on campus. Three one-hour lectures and one three-hour laboratory period per week.

CT6676 Systems Development and Design

A one-semester course; four credit hours. Effective use of data processing equipment in meeting the needs of business. The approach, requirements of the systems, developing the solution, data and system implementation. Three one-hour lectures and one three-hour laboratory period per week.

CT6678 Advanced Programming

A one-semester course; four credit hours. Basic concepts of programming systems, assemblers and compilers, report generators, utility programs, data scheduling systems, sort-merges, monitors and high level languages. Three one-hour lectures and one three-hour laboratory period per week.

CT6631 Introduction to Data Processing

A one-semester course; three credit hours. Data processing from manual systems to computers, developments in the field, the equipment involved, how the equipment is used, how it works, and the applications of data processing systems. Develops understandings preparing students to cope with the computer phenomenon as it relates to their field, or to further develop competency in machine operation or computer programming. Three class hours per week.

CT6635 Basic Programming I

A five week course; one credit hour. Fundamentals of programming, including terminal operation, flow charting, simple loops, branching, numeric and string variables. Three one-hour meetings per week.

CT6636 Basic Programming II

A five week course; one credit hour. Nesting loops, subscripted variables, string manipulation, subroutines. Three one-hour meetings per week.

Prerequisite: CT6635

CT6637 Basic Programming III

A five week course; one credit hour. Functions, data storage and retrieval techniques, advanced project of special interest to the student. Three one-hour meetings per week.

Prerequisite: CT6636

MA5333 Introduction to Statistics

A one-semester course; three credit hours. Emphasis on the role of statistics in the application of the scientific method. Descriptive statistics and statistical inference, variation, central tendency and dispersion, finite sample space, radnom variable, inference, linear regression and correlation. Three class hours per week.

Prerequisite: MA5521 or MA5611 and MA5612

MA5611-MA5612 Finite Mathematical Models I and II

A two-semester course; three credit hours per semester. Topics include: logic, set theory, vectors and matrices, probability, Markov chains, linear programming, game theory, non-linear functions, iteration and approximation methods, and monte carlo methods. Three class hours per week.

EN0401 Reading Strategies

A one-semester course; three credit hours. Designed to expose students to effective reading and study techniques. Emphasis is placed on understanding the printed word in various forms -- phrases, sentences, paragraphs, and whole selections. Some of the areas explored include concepts such as main ideas, significant details, vocabulary expansion and idea relationships like cause and effect, comparison-contrast, explanation, etc. The application of processes such as association, visualization, concentration and repetition is stressed to facilitate interpretation and memory of passages. Critical reading skills and organized approaches to study are also considered. Diagnostic testing is done at the beginning and end of the course. Three class hours per week.

EN4311 Communications I

A one-semester course; three credit hours. A writing and reading course which is closely related to Humanities I. The origin of language, social aspects of language, presymbolic and symbolic language, and social control through language will be studied as they relate to man's biological and social nature. Writing and reading assignments will be interrelated with Humanities I. Three class hours per week.

HU3111 Humanities I

A one-semester course; three credit hours. An interdisciplinary focus on man: cosmological, philosophical, biological, sociological, political and ecological. Sequence of topics: Man and the Cosmos, Biological Man, Man in Society, Man the Politician, Man and His Environment. Format: a colloquium involving a natural scientist, a social psychologist, and an historian-political scientist. Three class hours per week.

MA0501 Developmental Mathematics

A one-semester course; three credit hours. A review of arithmetic and an introduction to Algebra, including formula evaluation, linear and quadratic equations, graphs, set theory, etc. This course does not satisfy any of the degree requirements for the Associate Degree in Liberal Arts. Five class hours per week.

CC2480 Media Workshop

A one-semester course; one credit hour. An introduction to the use of the media in child care programs. Films, filmstrips, tapes, records, and television will be explored as they relate to education and entertainment in child care situations. Each student will be required to design one activity in which the media will be used as the basis of a learning experience. In addition, the student will become familiar with the operation of film and slide projectors, tape recorders, and closed-circuit television. One class hour per week.

ED2211 Observation of Classroom Dynamics

A one-semester course; one credit hour. A preliminary investigation of the classroom setting, including mechanics, group interaction, education process and the role of the educational assistant. Class observations will be discussed in seminars held during the semester. Two laboratory hours per week.

ED2244 Introduction to the Role of Educational Assistant

A one-semester course; three credit hours. This introductory course outlines the history of education; classroom techniques are discussed as well as the role of the educational assistant in the classroom. Three class hours per week.

ED2212 Classroom Experience I

A one-semester course; two credit hours. The student will become familiar with the practices of the educational assistant in various school settings. Under supervision, the student will help children, both individually and in small groups and will perform duties to assist the classroom teacher. Four laboratory hours per week.

ED2255 Classroom Experience II

A one-semester course; two credit hours. A continuation of Classroom Experience I, but with increasing responsibility placed upon the student in accord with his achievement made in ED2212. Four laboratory hours per week.

ED2256 Classroom Experience III

A one-semester course; three credit hours. A continuation of Classroom Experience II, with a more intensive involvement in a classroom setting. Six laboratory hours per week.

ED2262 Education Seminar

A one-semester course; three credit hours. In this seminar course the students are given the opportunity to summarize and analyze their classroom experiences. Group discussions serve as the final preparation for the students' careers as educational assistant. Three class hours per week.

EN8401 Children's Literature

A one-semester course; three credit hours. An introductory course in children's books. Considers the history of children's literature and contemporary authors. Study of criteria of good literature, children's interests and developmental stages related to books, various genre of children's literature, children's book awards, illustrators and authors,

FA7012 Introduction to the Creative Experience

A one-semester course; three credit hours. This course is designed to introduce methods, materials and meaning of the arts to those who are involved in programs with the pre-school child. It is the way to explore the world through non-verbal experiences which are personal to each child. Emphasis is placed on spontaneity, imagination, invention and flexibility of each student. Three class hours per week.

MA5512 Contemporary Mathematics for Elementary Teachers

A one-semester course; three credit hours. An introductory course designed to help students to understand the ideas behind the mathematics needed to be successful teachers in elementary education. Course deals with, and illustrates, the interaction between the arithmetic and geometric aspects, and deals with the broad range of, computational schemes currently used in elementary mathematical education. (MA5503 recommended). Three class hours per week.

PE2293 Physical Education and Recreation Activities

A one-semester course; one credit hour. Study of and participation in games and exercises designed to increase motor ability and group interaction of the young child. Two class hours per week.

PS1203 Human Growth and Development

A one-semester course; three credit hours. This course is designed to help student understand behavior from conception to maturity. Specific problems which occur during the life cycle will be discussed and explored. Patterns and sequences of growth and individual differences are reviewed in relation to the effects of heredity and environmental factors. Three class hours per week.

ET6601 Graphics

A one-semester course; two credit hours. This course stresses communication by graphical or pictorial means. Lettering, graphis sketching, orthographic projection, auxiliary views, dimensioning, descriptive geometry principles are topics covered. Neatness is emphasized throughout. One class hour and one two-hour laboratory period per week.

ET6611 Circuit Analysis I

A one-semester course; four credit hours. Introduction to the analysis of electric circuits using D.C. sources. Applications of Kirchoff's Voltage and Current Laws, superposition, loop analysis, modal analysis and Thevenin's Theorem. Three class hours and one three-hour laboratory period per week.

ET6612 Circuit Analysis II

A one-semester course; four credit hours. Extension of the theorems developed in ET6611 as they apply to circuits excited by sinusoidal sources. Energy considerations, storage of energy, RMS determinations and transformers. Three class hours and one three-hour laboratory period per week.

Prerequisite: ET6611

ET6653 Circuit Analysis III

A one-semester course; four credit hours. Study of the behavior of electric circuits excited by non-linear sources. Fourier series, pulse circuits, and non-linear elements. Three class hours and one three-hour laboratory period per week.

Prerequisite: ET6612

ET6113 Introduction to Electronics

A one-semester course; one credit hour. An orientation course of seminar classes and experiences designed to acquaint the student with the field of electronic technology - its breadth and its opportunities. In addition to discussions, emphasis will be placed on the students actually examining physical devices and systems such as motors, transistors, emplifiers, recorders, radios, televisions and computers. One three-hour class/lab per week.

ET6685 Electronics I - Semiconductors

A one-semester course; four credit hours. An introductory course in solid-state physics and semiconductor devices such as diodes, transistors, silicon controlled rectifiers, field effect transistors, unijunction transistors. Applications of these devices such as rectification and amplification, are studied on an introductory basis. Three class hours and three lab hours per week.

ET6686 Electronics II - Electronic Circuits I

A one-semester course; five credit hours. A course in transistor amplifiers, including transistor manufacturing methods, biasing and stability, amplifiers in cascade, feedback amplifiers, operational amplifiers and frequency response. Course culminates in the design of a practical, functioning amplifier. Four class hours and one three-hour laboratory period per week.

Prerequisite: MA5621

ET6689 Electronics III - Electronic Circuits II

A one-semester course; five credit hours. Power amplifiers including Class A, Class B push-pull and Class C. Tuned circuit amplifiers. Oscillators. Modulation and demodulation. Power supplies and regulation. Op-amps as differentiators and integrators. Four class hours and one three-hour laboratory period per week.

Prerequisites: ET6686 and MA5622

ET6682 Electronics IV - Pulse and Digital

A one-semester course; four credit hours. A study of pulse circuits, digital logic and logic circuits. The fundamental operators of boolean algebra, circuits to perform the operations, bistable circuits, other industrial devices, and switching properties of semi-conductors are analyzed. Three class hours and one three-hour laboratory period per week.

Prerequisite: ET6653 and ET6686

ET6655 Electronics V - Measurements

A one-semester course; four credit hours. Study of the problems in precise measurements of the fundamental parameters of voltage, current, velocity, acceleration, displacement, time and events per unity time. Emphasis will be on usage and limitations of current equipment. Three class hours and one three-hour laboratory period per week.

Prerequisite: ET6612

MA5621 Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. A complete review of algebra. Introduction to trigonometry. Three class hours and two one-hour problem-solving sessions per week.

MA5622 Advanced Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. Emphasis on the use of algebra, trigonometry and graphics in the solution of technical problems. An introduction to the concepts of rate of change and summation of areas. Three class hours and two one-hour problem-solving sessions per week.

Prerequisite: MA5621

MA5651 Advanced Technical Mathematics I

A one-semester course; four credit hours. For students enrolled in a technology curriculum. The course covers basic analytical geometry, differentiation, integration, and the mathematics of transcendental functions, with applications to maximum-minimum, related rates, acceleration, area, volume, and curve sketching problems. Four class hours per week.

Prerequisite: MA5622

MA5652 Advanced Technical Mathematics II

A one-semester course; three credit hours. For students enrolled in a technology curriculum. The course covers the calculus of trigonometric, exponential, olgarithmic, hyperbolic, and inverse functions. The course also covers power series expansion, and special integration techniques including integration by parts, trigonometric substitution, partial fraction expansion, etc. Three class hours per week.

Prerequisite: MA5651 or equivalent

PI5621 Applied Physics I

A one-semester course; four credit hours. Fundamentals of mechanical motion using algebra and graphical solutions. Principles of heat transfer, wave motion, vibration and sound. Basic fluid mechanics. Three class hours and one three-hour laboratory period per week.

PI5622 Applied Physics II

A one-semester course; four credit hours. Fundamentals of electricity, magnetism, and electrochemical effects. Electromagnetic induction and magnetic properties. Introduction to physical optics, lenses, mirrors and optical instruments. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5621

MA5683 Calculus I

A one-semester course; four credit hours. The fundamental ideas and applications of both differential and integral calculus. Differentiation and integration of polynomials, algebraic functions and transcendental functions. Maxima, minima, concavity and curve tracing. Areas and volumes by integration; related rates. Four class hours per week.

Prerequisite: MA5661

MA5684 Calculus II

A one-semester course; four credit hours. The calculus of scalar and vector products, solid analytical geometry, partial derivatives, series expansions, deMoivre's Theorem, L'Hospital's Rule, etc. Four class hours per week.

Prerequisite: MA5683

MA5685 Differential Equations

A one-semester course; four credit hours. Fundamentals of ordinary linear differential equations, LaPlace Transofrms, numerical methods of solutions, etc. Four class hours per week.

Prerequisite: MA5684

PI5623 Engineering Physics I

A one-semester course; four credit hours. The principles of mechanics, including composition and resolution of vectors, statics, moments, rectilinear motion, Newton's second law, motion of a projectile, work and energy, impulse and momentun, circular motion, rotational kinematics and dynamics, elasticity, harmonic motion. Three class hours and one three-hour laboratory period per week.

Prerequisite: MA5661 or equivalent

PI5624 Engineering Physics II

A one-semester course; four credit hours. Principles of electricity and magnetism. Coulomb's Law, potential, D.C. circuits, the magnetic field, galvanometers, ammeters, voltmeters, wattmeters, the D.C. motor, magnetic field of a current and of a moving charge, induced electromotive force, capacitance and industance, magnetic properties of matter. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5623

PI5651 Engineering Physics III

A one-semester course; four credit hours. Heat, sound, and optics, including the following: thermometry, quantity of heat, change of state, work and heat; heat transfer, thermal properties of matter, the first and second law of thermodynamics, wave motion, vibrating systems; accoustical phenomena; the nature and propagation of light; reflection and refraction at a single surface, lenses and lens aberration; optical instruments; illumination, color, and polarized light. Three class hours and one three-hour laboratory period per week.

ET6601 Graphics

A one-semester course; two credit hours. This course stresses communication by graphical or pictorial means. Lettering, graphics, sketching, orthographic projection, auxiliary views, dimensioning, descriptive geometry principles are topics covered. Neatness is emphasized throughout. One class hour and one two-hour laboratory period per week.

ET6651 Engineering Mechanics I (Statics)

A one-semester course; three credit hours. Development of fundamental concepts of mechanics such as vectors, forces and moments. Detailed treatment of free body diagrams and their application to force systems. Laws of static equilibrium, friction forces, first and second moments, and problems involving various structures and machine parts. Methods of solution will include vector analysis, matrix methods and computer-aided analysis. Three class hours per week.

ET6652 Engineering Mechanics II (Dynamics)

A one-semester course; three credit hours. Basic laws of kinematics of particles and rigid bodies involving linear, angular, relative and absolute motion. Newton's Laws and their application to the kinematics of rigid bodies in translation, rotation and plane motion; and the principles of work, kinetic energy, impulse and momentum. Methods of solution will include vector analysis, matrix methods and computer-aided analysis. Three class hours per week.

Prerequisite: ET6651

ET6661 Networks I

A one-semester course; four credit hours. Introduction to general network solutions employing mathematical models and topology. Emphasis on steady state network solutions using Kirchoff's Laws, Thevenin's Theorem, superposition theorem, loop and nodal analysis. Three class hours and one three-hour laboratory period per week.

ET6662 Networks II

A one-semester course; four credit hours. Study of electrical networks under transient conditions. Use of singularity functions, pole zero plots and Fourier Series solutions are included. Three class hours and one three-hour laboratory period per week.

Prerequisite: ET6661

MA5661 Advanced Trigonometry and Analytic Geometry

A one-semester course; four credit hours. Review of the fundamentals of algebra and trigonometry. Introduction to advanced algebraic concepts, trigonometric identities, basic statistics, complex variables, analytic geometry and the basic forms of differentiation and integration. Three class hours and one two-hour problem-solving session per week.

EN4676 Technical Writing

A one-semester course; three credit hours. Engineering and scientific report writing. General inductive exposition with emphasis upon research writing, industrial reports and graphic techniques. Three class hours per week.

Prerequisite: EN4401 and EN4402

ET6601 Graphics

A one-semester course; two credit hours. This course stresses communication by graphical or pictorial means. Lettering, graphics sketching, orthographic projection, auxiliary views, dimensioning, descriptive geometry principles are topics covered. Neatness is emphasized throughout. One class hour and one two-hour laboratory period per week.

EV5621 Environmental Sanitation

A one-semester course; four credit hours. Methods of disease transmission, hygienic excreta disposal, municipal and industrial liquid waste disposal methods, characteristics of water, water treatment, protection of ground water, insect and rodent control, solid waste collection and disposal, milk and food sanitation, swimming pool sanitation and industrial hygiene, air pollution. Three one-hour lectures and one three-hour laboratory period per week.

EV5622 Applied Microbiology

A one-semester course; four credit hours. Scope and history of microbiology, classification of microorganisms, protozoa, fungi, viruses, microscopy, bacterial physiology, saprophytic bacteria, culture media and methods, sterilization and disinfection, germicides, sources of infection, microbes and disease, skin infections. The study of several pathogenic bacteria associated with water and food, natural and acquired resistance to bacteria, and respiratory disease-producing microbes. Three one-hour lectures and one three-hour laboratory period per week.

EV5624 Air Resources Management

A one-semester course; three credit hours. A course presenting the blending of all approaches designed for prevention and control of air pollution including abatement of smoke, control of auto exhausts and handling complaints as well as other technical and administrative facets of air resources management. Three one-hour lectures per week.

EV5625 Sanitary Chemistry I

A one-semester course; four credit hours. Theory and laboratory technique for all control tests of water purification including: bacteriology, color, turbidity, pH, alkalinity, hardness, coagulation, chlorides, fluorides, iron, manganese, detergents, bactericides, and nitrates. Three one-hour lectures and one three-hour laboratory period per week.

EV5626 Sanitary Chemistry II

A one-semester course; four credit hours. Theory and laboratory technique for the determination of solids, dissolved oxygen, oxygen consumed, relative stability, water and sewage bacteria, biochemical oxygen demand, organic nitrogen, volatile acids, toxic metals, stream studies, in-plant studies at nearby plants. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: EV5625

EV5627 Environmental Biology

A one-semester course; four credit hours. A basic course in biology with emphasis on microorganisms and laboratory procedures for the identification of organisms peculiar to the water and liquid waste treatment processes and stream sanitation, air-borne infections of man. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: EV5622

EV5628 Liquid Waste Treatment

A one-semester course; four credit hours. Composition of sewage, nitrogen cycle, carbon cycle, sulphur cycle, aerobic and anaerobic decomposition, dilution, screening, disinfection, chemical precipitation, sand filters, filter flies, field studies, in-plant studies, industrial waste. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: EV5626

EV5629 Water Purification

A one-semester course; four credit hours. Basic principles of water purification including: aeration, sedimentation, rapid sand filtration, chlorination, treatment chemicals, taste and odor control, bacteriological control, mineral control, design criteria and operational problems. New processes and recent developments. Rules, regulations, forms and records. Three one-hour lectures and one three-hour laboratory period per week.

EV5630 Atmosphere Sampling and Analysis

A one-semester course; four credit hours. Methods of treatment, detailed study of at least two types of plants, basic design parameters of all units, quantity expected from population, application of package plants and application of septic tanks. Rules, regulations, forms, and records. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: EV5628

EV5632 Codes, Contracts and Specifications

A one-semester course; three credit hours. Basic principles and methods most significant in contract relationships; appreciation of the legal considerations in construction work; study of the National Building Code and local building codes, interpreting and outlining specifications. Three class hours per week.

MA5621 Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. A complete review of algebra. Introduction to trigonometry. Three class hours and two one-hour problem-solving sessions per week.

MA5622 Advanced Algebra and Trigonometry

A one-semester course; four credit hours. For students enrolled in a technology curriculum. Emphasis on the use of algebra, trigonometry and graphics in the solution of technical problems. An introduction to the concepts of rate of change and summation of areas. Three class hours and two one-hour problem-solving sessions per week.

Prerequisite: MA5621

PI5621 Applied Physics I

A one-semester course; four credit hours. Fundamentals of mechanical motion using algebra and graphical solutions. Principles of heat transfer, wave motion, vibration and sound. Basic fluid mechanics. Three class hours and one three-hour laboratory period per week.

PI5622 Applied Physics II

A one-semester course; four credit hours. Fundamentals of electricity, magnetism, and electochemical effects. Electromagnetic induction and magnetic properties. Introduction to physical optics, lenses, mirrors and optical instruments. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5621

FR4401-FR4402 Introductory French I and II

A two-semester course; three credit hours per semester. For students who have not completed two years of secondary school French or the equivalent as determined by the college. An introduction to the basic grammatical patterns of French. Speaking, reading and writing in the French language. Three class hours per week.

FR4451-FR4452 Intermediate French I and II

A two-semester course; three credit hours per semester. For students who have completed two or more years of secondary school French or the equivalent as determined by the college, or who complete FR4401 and Fr4402 successfully. A continued study of FR4401 and FR4402 language skills, emphasizing the development of reading ability. Three class hours per week.

FR4999 Special Topics in French

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficent for the project and permission of the instructor.

FR8851-1 Masterpieces of French Literature

A one-semester course; three credit hours. At least one representative work from each major literary period will be read in French. Three class hours per week.

GM4401-GM4402 Introductory German I and II

A two-semester course; three credit hours per semester. For students who have not completed two years of secondary school German or the equivalent as determined by the college. Audiolingual emphasis. Introduction to grammatical patterns, reading and writing. Three class hours per week.

GM4451-GM4452 Intermediate German I and II

A two-semester course; three credit hours per semester. For students who have completed two or more years of secondary school German or the equivalent as determined by the College, or who have completed GE4401 and GE4402. A continued study of the language emphasizing the development of reading ability. Three class hours per week.

GM4999 Special Topics in German

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration.

Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

IT4401-IT4402 Introductory Italian I and II

A two-semester course; three credit hours per semester. For students who have not completed two years of secondary school Italian or the equivalent as determined by the college. Audiolingual emphasis. Introduction to grammatical patterns, reading and writing. Three class hours per week.

IT4451-IT4452 Intermediate Italian I and II

A two-semester course; three credit hours per semester. For students who have completed two or more years of secondary school Italian or the equivalent as determined by the college, or who have completed IT4401 and IT4402. A continued study of the language emphasizing the development of reading ability. Three class hours per week.

IT49999 Special Topics in Italian

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

SP4401-SP4402 Introductory Spanish I and II

A two-semester course; three credit hours per semester. For students who have not completed two years of high school Spanish or the equivalent as determined by the college. Audiolingual emphasis. Introduction to grammatical patterns, reading and writing. Three class hours per week.

SP4421 Conversational Spanish for Public Service

A one-semester course; three credit hours. Designed primarily for personnel in public service who need basic communication skills when dealing with speakers of Spanish only. Question/answer format: basic dialogue; pattern practice; specialized vocabularies to meet individual needs. Three class hours per week.

SP4451-SP4452 Intermediate Spanish I and II

A two-semester course; three credit hours per semester. For students who have completed two or more years of high school Spanish or the equivalent as determined by the college, or who have completed SP4401 and SP4402. A continued study of language skills, emphasizing the development of reading ability. Three class hours per week.

SP4999 Special Topics in Spanish

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in the discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

GV3313 The Federal Government

A one-semester course; three credit hours. The structure, functions, and procedures of the legislative, judicial, and administrative branches of the Federal Government will be analyzed within the context of the Constitution of the United States. Emphasis will be given to the structure and function of the various branches of government as well as their interrelationships and the effects of other factors on their functions. Three class hours per week.

GV3314 State and Local Government

A one-semester course; three credit hours. The structure, functions, politics, and problems of state and local government will be dealt with in an attempt to become aware of the functions and operations of state and local government. Special emphasis will be given to the identification and definition of problem areas in an attempt to better understand the issues involved as well as to deal with possible solutions. Three class hours per week.

GV3315 Civil Rights and Liberties

A one-semester course; three credit hours. Course deals with the role of individual rights and liberties in American society within the framework of the United States Constitution. The paradox of freedom is essentially the core around which lectures, discussion and research will be conducted. It is advisable to take this course after having completed a course in federal government. Three class hours per week.

GV3323 Comparative Modern Government

A one-semester course; three credit hours. Comparison and contrast of the spirit and structures of government in France, Great Britain, the Soviet Union, Germany. Three class hours per week.

Prerequisite: HI9901, HI9902, GV3313 and permission of the instructor.

GV3999 Special Topics in Government

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in the discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

HI9901-HI9902 Western Civilization I and II

A two-semester course; three credit hours per semester. Survey of the major historical developments and trends in Western Civilization from the Ancient Near East and Classical Greece and Rome to modern times, with emphasis on the formation and evolution of the social, political, economic, and cultural institutions of Modern Europe. Three class hours per week.

HI9903 European Perspectives

A one-semester course; three credit hours. This course will survey European History from its beginnings to the present. It will pursue themes which have a strong bearing on contemporary Europe such as representative government, democracy, international relations, colonialism and religious movements. Three class hours per week.

HI9913-HI9914 U.S. History

A two-semester course; three credit hours per semester. The United States since Colonial times. The development of the social, political and cultural institutions. Three class hours per week.

HI9915 American Civilization

A one-semester course; three credit hours. Survey of American History from early colonization to the present. The focus is on the major developments, concepts, and themes in the American past; e.g., emigration and immigration, the Constitution, industrialization, patterns of living, American dreams. Three class hours per week.

HI9916 Recent U.S. History

A one-semester course; three credit hours. Seminar on American history since World War II. Directed readings and emphasis on the major areas of recent national concern such as the "welfare state", foreign affairs, changes in American society, the "urban crisis" in the post-war years, etc. In addition, projects, the intent of which is to depict some perspectives on contemporary American, are assigned. Three class hours per week.

Prerequisite: U.S. History I and II or permission of
the Instructor.

HI9951 19th Century Europe

A one-semester course; three credit hours. An analysis of the major political, social, economic, idealogical, intellectual and cultural movements of Western Europe from the time of the French Revolution up to the First World War. Three class hours per week.

HI9952 20th Century Europe

A one-semester course; three credit hours. An analysis of the major social, economical, political, ideological, intellectual and cultural trends of the 20th Century. Topics such as the search for collective security, revolutions, totalitarianism, the Cold War, the quest for European unity and Europe's relationship to the rest of the world will be explored. Three class hours per week.

HI9953 Modern China and Japan

A one-semester course; three credit hours. A survey of Chinese and Japanese history and related areas from around 1800 to the present. This course will begin by exploring the nature of traditional China and Japan on the eve of confrontation with the West, their contrasting response to Western power and ideas, and their attempts at reconciling traditional and modern ideas and institutions; it will then proceed to examine the emergence of nationalism in China and Japan, the triumph of revolution in China and the establishment of the People's Republic, and the growth of Japan into a modern industrial state. Three class hour per week.

HI9955 Minority Groups in America

A one-semester course; three credit hours. Seminar on the contributions and difficulties of religious, racial, ethnic and other minority groups in the pluralistic American society from colonial times to the present. Particular attention will be given to the following groups: Catholic and Jewish, American Indian, Negro and Puerto Rican, and southern European and Oriental. Students will research, write and present individual reports. Three class hours per week.

Prerequisite: HI9913, HI9914 and permission of the instructor

HI9956 American Foreign Policy

A one-semester course; three credit hours. A survey of United States foreign affairs from revolutionary times to the present. Special emphasis on America's emergence as a world power and her relationship with Europe, Latin American and the Far East. Attention will be paid to the developing roles of the President and the State Department, Congress and international organizations in our foreign policy. Three class hours per week.

HI9958 History of the Soviet Union

A one-semester course; three credit hours. Study of Russia since the overthrow of the Czar in March 1917. Special emphasis is placed on the origin or Russian Communism; the changing nature of Communism under Lenin, Stalin, Krushchev and Breshnev; Soviety foreign policy, especially since World War II. Three class hours per week.

HI9999 Special Topics in History

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

HI9999 Special Topics in History

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and the permission of the instructor.

**LE3601 Criminal Law

A one-semester course; three credit hours. The substantive law of crimes, including the general and the special parts of the criminal law. Emphasis is placed on analysis of the elements of particular crimes through case study. Three class hours per week.

**LE3602 Law Enforcement Planning and Management

A one-semester course; three credit hours. Consideration of police problems at the administrative level, including coordination of all branches of a police department. An evaluation of line, staff and auxiliary functions and the interrelationship of each. The purpose, need, and scope of planning in the police operation, including staffing, collection of data and use of data processing. Three class hours per week.

**LE3603 Introduction to Criminal Justice

A one-semester course; three credit hours. A survey of federal, state, county and local law enforcement agencies, their history, development and modern role within the field of criminal justice. Three class hours per week.

**LE3604 Introduction to Criminology

A one-semester course; three credit hours. A survey of patterns and evolution of adult criminal and juvenile delinquent behavior analyzed in terms of various theories of such behavior; administration of criminal justice: police, law, courts (including juvenile courts) and prisons. Three class hours per week.

**LE3651 Police Operations

A one-semester course; three credit hours. Organization and function of line operations in law enforcement including patrol, traffic, investigation, juvenile, vice and other specialized operations. Three class hours per week.

**LE3653 Criminal Investigation

A one-semester course; three credit hours. An introduction to field investigation, including conduct at the crime scene, interview and interrogation of witnesses and suspects, the use of informants, and techniques of surveillance. Emphasis is placed on special investigative techniques and on the court procedure of the police case. Three class hours per week.

**LE3654 Criminal Procedure

A one-semester course; three credit hours. The criminal process from investigation through arrest, indictment, trial and sentencing. Emphasis is placed on procedural matters especially affecting law enforcement such as arrest, search and seizure, interrogation, wiretapping, entrapment, and pre-trial publicity. Three class hours per week.

**Course offered in the Division of Continuing Education and Community Services only.

**LE3656 Introduction to Criminalistics

A one-semester course; three credit hours. The organization, capabilities, and use of a criminalistics laboratory, including demonstrations of identification and comparison of evidentiary materials. Three class hours per week.

**LE3658 Organized Crime in the United States

A one-semester course; three credit hours. The history of organized crime in the United States, delineating its effects on our society, the types of businesses it has penetrated and methods of combatting this serious problem. Three class hours per week.

**Course offered in the Division of Continuing Education and Community Services only.

LS0121 Introduction to Library Services

A one-semester course; three credit hours. This course will investigate the history of libraries, the role of the library in American society, the organizational structure of the library, media services available, different types of libraries. The course will attempt to familiarize students with the day to day functions of the library as well as with library resources, both print and non-print. Three class hours per week.

LS0122 Library Reference and Research Methods

A one-semester course; three credit hours. This course will study the basic tools of locating information in a library situation - basic reference sources indexes, government documents, etc. Instruction in how to do reference work and changing trends in reference work will be considered. Three class hours per week.

LS0124 Introduction to Cataloguing and Classification

A one-semester course; three credit hours. This course will examine classification systems, cataloguing and filing rules, sources of printed catalog cards, and sources of cataloguing information. Emphasis will be placed on the use of sources of cataloguing information for the producting of catalog cards. Three class hours per week.

LS0125 Library Administration

A one-semester course; three credit hours. This course will consider the role of the Librarian as administrator in a public library situation. While concentration will be on the public library system, some emphasis will be given to the administration of the school library. The purposes and objectives of the library, library law, personnel, management operations, budget, the book collection (print and non-print), technical services, and the relationship of the library to the community will be discussed. Three class hours per week.

MA5501 Pre-college Mathematics

A one-semester course; no credit hours. Especially designed to fulfill prerequisites for MA5503. Sets. Sets of numbers. Properties of a field. Solution and graphing of equations and inequalities in one and two variables. Compound statements. Three class hours per week.

MA5503 Finite Mathematics I

A one-semester course; three credit hours. Compound statements. Truth tables. Inference and proof. Set theory, counting and measuring. Mathematical reasoning and mathematical systems. Three class hours per week.

Prerequisite: Two years of high school algebra or MA5501.

MA5504 Finite Mathematics II

A one-semester course; three credit hours. Relations and functions. Permutations and combinations. Probability. Descriptive statistics. Sampling designs. Three class hours per week.

Prerequisite: MA5503

MA5506 Statistics

A one-semester course; three credit hours. Set theory approach to probability. Descriptive statistics. Probability distributions. Sampling inferences from statistics. Hypothesis testing. Linear regression and correlation. Three class hours per week.

Prerequisite: MA5503

MA5508 Elementary Functions

A one-semester course; three credit hours. Set theory approach to polynomial, rational, algebraic, exponential, logarithmic, and trigonometric functions. Analytic geometry. Three class hours per week.

Prerequisite: MA5503

MA5512 Contemporary Mathematics for Elementary Teachers

A one-semester course; three credit hours. An introductory course designed to help students to understand the ideas behind the mathematics needed to be successful teachers in elementary education. Course deals with, and illustrates, the interaction between the arithmetic and geometric aspects, and deals with the broad range of computational schemes currently used in elementary mathematical education. (MA5503 recommended). Three class hours per week.

MA5531 Calculus I (Liberal Arts)

A one-semester course; four credit hours. The integral and derivative. Differential calculus of polynomial, rational, exponential, logarithmic and trigonometric functions, with an emphasis on problem solving; antiderivatives. Four class hours per week.

MA5532 Calculus II (Liberal Arts)

A one-semester course; four credit hours. Differential functions, chain rule, methods of integration, implicit and inverse functions. Limits, applications of integration to problem solving. Volume, theory of curves. Four class hours per week.

Prerequisite: MA5531 or equivalent

MA5999 Special Topics in Mathematics

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

MR6601 Medical Record Science I

A one-semester course; three credit hours. A brief study of the history of medical records, hospitals, and medicine. An analysis is made of professional ethics, and personal conduct required of medical record personnel. Study is also made of the uses and value of the medical record, and responsibility for the component parts of the medical record, quantitative and qualitative analysis of records, and methods and techniques to facilitate completion of records. The importance of medical record personnel as members of the health-care team is emphasized. Two class hours and one two-hour laboratory period per week.

MR6602 Medical Record Science II

A one-semester course; three credit hours. Deals with the study of basic principles of compiling statistics for hospitals and other medical facilities. Preparation of reports includes the daily census; analysis of hospital services; monthly, annual and special reports. Methods for recording vital statistics are included. Basic principles in the classification of diseases and operations according to the Standard Nomenclature of Diseases and Operations and the International Classification of Diseases, Adapted. Also included are methods of maintaining the physicians index; birth, death and emergency registers; and the special types of disease registers. The techniques of assisting medical staff in research projects are included. Two class hours and one two-hour laboratory period per week.

MR6651 Medical Record Science III

A one-semester course; three credit hours. Course includes the study of principles of law as related to patient care and medical records; study of medical staff structure within the hospital; study of health accrediting agencies. Two class hours and one two-hour laboratory period per week.

MR6652 Medical Record Seminar

A one-semester course; one credit hour. This is a seminar in problem analysis and action in the operation of a medical record department of a hospital or other type of medical facility. The course is designed for students in the final semester and will provide a means of coordinating the final directed practice. One class hour per week.

MR6605 Medical Terminology I

A one-semester course; two credit hours. A study of prefixes, suffixes, abbreviations, disease, operative, and drug terms. Terms will be taught by anatomical system with medical science lectures included. Two class hours per week.

MR6606 Medical Terminology II

A one-semester course; two credit hours. A continuation of Medical Terminology I. Two class hours per week.

Prerequisite: MR6605

MR6667 Directed Practice I (Medical Record)

A one-semester course; 4 credit hours. Supervised practice in a community hospital affiliated Medical Record Department. Students participate in all phases of medical record systems, and become fully acquainted with the required procedures of a local hospital. Comparison of systems is provided by class field trips to other cooperating hospitals. Two days per week.

Prerequisites: MR6601 and MR6602

MR6668 Directed Practice II (Medical Record)

A one-semester course; three credit hours. Directed practice experience in medical facilities other than the community hospital. Areas included are the teaching hospital, the long-term facility and the community health center. Two days per week.

MR6661 Transcription I (Medical Record)

A one-semester course; one credit hour. Directed practice experience in typing dictated discharge summaries, operative reports, and history and physical examinations. Sixty class hours per semester.

Prerequisite: SH6601

MR6662 Transcription II (Medical Record)

A one-semester course; one credit hour. Directed practice experience in typing dictated discharge summaried, operative reports, and history and physical examinations. Sixty class hours per semester.

Prerequisite: MR6661

FA7012 Introduction to the Creative Experience

A one-semester course; three credit hours. This course is designed to introduce methods, materials and meaning of the arts to those who are involved in programs with the pre-school child. It is the way to explore the world through non-verbal experiences which are personal to each child. Emphasis is placed on spontaneity, imagination, invention and flexibility of each student. Three class hours per week.

HS2322 Introduction to Human Services in the Community

A one-semester course; two credit hours. An introduction to community agencies, and services, available to individuals with social, economic, educational, and mental problems. Emphasis will be placed on the role of these agencies as they relate to the field of Human Services. Two class hours per week.

MH2111 Introduction to Mental Health

A one-semester course; three credit hours. An introduction to the history of psychiatry, current trends in mental health and mental retardation, the mental health team, prevention of mental illness, and the role of the mental health technician. Consideration will be given to the diagnostic evaluation, establishing contact with patients and families, and techniques of interviewing. Three class hours per week.

MH2133 Observation and Recording of Mental Health Programs

A one-semester course; one credit hour. A preliminary investigation of programs in Mental Health, in varied institutional settings. Defined areas of mental health will be observed and recorded. These observations will be discussed in seminars held throughout the semester. Two laboratory hours per week.

MH2134 Mental Health Practicum I

A one-semester course; two credit hours. A rotating practicum in selected community psychiatric facilities, social agencies, and school settings. Under supervision, students will give services to patients individually or in groups and have opportunity to follow up patients in the home and community. Four laboratory hours per week.

MH2143 Mental Health Practicum II

A one-semester course; three credit hours. A continuation of Practicum I, but with a greater involvement in patient care. Six laboratory hours per week.

MH2144 Mental Health Practicum III

A one-semester course; six credit hours. A continuation of Practicum II, with a more intensive involvement in a Mental Health facility. Twelve laboratory hours per week.

MH2146 Theories of Personality and Behavior

A one-semester course; three credit hours. This course will explore the various sytems of personality, their differences and similarities, and the application of theories to clinical practice. This course is concerned with assisting the student to understand his own behavior as well as the basic needs and behavior of patients and clients. Three class hours per week.

MH2155 Modalities of Treatment

A one-semester course; three credit hours. The management of special problems with adults and children becomes the central focus of this course. Various types of therapies will be explored such as individual therapy, group therapy, family therapy, behavior modification, and chemo-therapy. Special emphasis will be given to the theory of crisis intervention and the role of the mental health technician. Three class hours per week.

MH2166 Seminar in Mental Health

A one-semester course; three credit hours. This seminar course allows for group discussion of theoretical and practical approaches to patient/client care. Analysis of practicum experiences; preparation for service in various agencies; and graduate's identity as a mental health technician. Three class hours per week.

PE2293 Physical Education and Recreation Activities

A one-semester course; one credit hour. Study of and participation in games and exercises designed to increase motor ability and group interaction of the young child. Two class hours per week.

PS1203 Human Growth and Development

A one-semester course; three credit hours. This course is designed to help student understand behavior from conception to maturity. Specific problems which occur during the life cycle will be discussed and explored. Patterns and sequences of growth and individual differences are reviewed in relation to the effects of heredity and environmental factors. Three class hours per week.

PI5501 General Physics I

A one-semester course; four credit hours. Intended for liberal arts students and some science majors. The course will examine the elements of mechanics, sound, heat, electricity, magentism and light. Plane trigonometry and algebra will be used. Three class hours and one three-hour laboratory period per week.

Prerequisite: One year of college mathematics

PI5502 General Physics II

A one-semester course; four credit hours. Intended for liberal arts students and some science majors. The course will examine the elements of mechanics, sound, heat, electricity, magentism and light. Plane trigonometry and algebra will be used. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5501

PI5503 Introductory Physics I

A one-semester course; four credit hours. This course is designed to cover concepts in physics which are necessary for a basic understanding of our twentieth century physical world. The treatment will be largely non-mathematical and will cover topics such as relative motion, mass energy relations and atomic structure. Three class hours and one three-hour laboratory period per week.

PI5504 Introductory Physics II

A one-semester course; four credit hours. A continuation of PI5503 with the same objectives, but focussed upon other interesting topics such as heat, light, and radiation. Three class hours and one three-hour laboratory period per week.

Prerequisite: PI5503

PI5999 Special Topics in Physics

A one-semester course; one to three credit hours. Directed readings, directed research or seminar in specific topics in the discipline. Syllabus to be approved by department and division chairmen prior to registration. Class hours equivalent to credit value of course.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

PI5510 Physics for Respiratory Therapists

A one-semester course; four credit hours. The course presents physics material with special emphasis on the physical principles and topics relating to Respiratory Therapy. Topics of special interest will include: mechanics of fluid flow, heat exchange in evaporation and condensation, gas laws. Three

Three class hours and one two-hour laboratory period per week.

Prerequisite: RT6613 and RT6615

BI5553 Microbiology

A one-semester course; four credit hours. The biology of bacteria and microorganisms is studied. Laboratory work emphasizes the sterile technique. Immunology is discussed. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: One year of introductory biology subjects at the college level and permission of the instructor.

BI5999 Special Topics in Biology

A one-semester course; one to three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department chairman and division chairman prior to registration. Class hours equivalent to credit hours.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project, and permission of the instructor.

CR5001 Pre-College Chemistry

A one-semester course; no credit hours. This course is designed for the student who plans, at a future date, to enroll in a first-year college chemistry course and desires a head start. Topics covered include energy, matter, measurements, interaction between atoms, and chemical equilibrium. The use of mathematics will be at a minimum. Three one-hour lectures per week.

CH5501 General Chemistry I

A one-semester course; four credit hours. Deals with physical chemistry. The study of the principles of chemistry by a reliance on the measurement and mathematical treatment of chemical units. The application of these units to the interaction of chemical substances under mechanical, thermal and electrical changes as exemplified by considering the combinations by weight, the gas laws, electro-chemistry and chemical equilibrium in gaseous and solution reactions. Three class hours and one three-hour laboratory period per week.

CH5502 General Chemistry II

A one-semester course; four credit hours. A continuation of General Chemistry I dealing with physical and inorganic chemistry, and an introduction to organic chemistry. Three class hours and one three-hour laboratory period per week.

Prerequisite: CH5501

CH5503 Introductory Chemistry I

A one-semester course; four credit hours. The course covers the basic understanding of atomic structure of the elements, periodic table and radioactivity. The study of solid, liquid and gaseous states of matter is undertaken. Three one-hour lectures and one three-hour laboratory period per week.

CH5504 Introductory Chemistry II

A one-semester course; four credit hours. The course covers the study of solutions, acids, bases and neutralization. The application of physical chemical theory to inorganic chemistry. A brief review of organic chemistry is undertaken with special emphasis on how this aspect of chemistry relates to biological systems. Three one-hour lectures and one three-hour laboratory period per week.

CH5999 Special Topics in Chemistry

A one-semester course; one to three credit hours. Directed readings, directed research or seminar in specific topics in the discipline. Syllabus to be approved by department and division chairmen prior to registration. Class hours equivalent to credit hours.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project, and permission of the instructor.

ES5501 Meteorology (Earth Science I)

A one-semester course; four credit hours. A basic study of the elements which constitute weather; temperature, pressure, winds, humidity and precipitation. Further study includes global patterns of weather conditions and the resultant climatic zones. Three one-hour lectures and one two-hour laboratory period per week.

ES5502 Physical Geology (Earth Science II)

A one-semester course; four credit hours. Introduction to landforms and the processes of their formation; erosion by wind, water, ice; beachers and wave action. Further study is accomplished through the use of topographic maps. Additional topics include descriptions of basic rocks and minerals, volcanism, mountain building and crustal movement. Three one-hour lectures and one two-hour laboratory period per week.

ES5504 Mineralogy

A one-semester course; three credit hours. An introductory course in the basic rock-forming minerals. The classification of minerals is examined on the basis of chemical, physical and optical properties, with an introduction to crystal structure. The course concludes with a study of basic rock groups based on their mineralogical composition. Laboratory work centers on the indentification of the more important minerals in both hand specimens and microscopic thin sections. Two lectures and one two-hour laboratory period per week.

Prerequisite: ES5502 or permission of the instructor

ES5999 Special Topics in Earth Science

A one-semester course; one to three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Class hours equivalent to credit hours.

BI5510 Human Biology

A one-semester course; three credit hours. A basic study of the structure and function of the human body. Emphasis will be placed on the interrelationships between the systems. Special consideration will be given to the nervous system, the circulatory system, and reproduction, growth and development. Three class hours per week.

BI5511 Introductory Biology - Botany

A one-semester course; four credit hours. An introductory biology course based on the study of plants. The lectures include a gross and microscopic survey of plant anatomy from algae to the higher vascular plants noting the evolutionary trends, their economic relationship with man, and the fundamentals of physiology and morphology of the higher vascular plants. Three one-hour lectures and one two-hour laboratory period per week.

BI5514 Introductory Biology - Zoology

A one-semester course; four credit hours. An introductory biology course based on the study of animals. The lectures include a survey of major invertebrate and vertebrate animals with emphasis on their structure, adaptions, evolution and natural history. Laboratory work emphasizes identification and structural form of local fauna. Three one-hour lectures and one two-hour laboratory period per week.

BI5519 Anatomy and Physiology I

A one-semester course; four credit hours. Human anatomical structures and physiological systems will be studied. Emphasis will be placed on the interrelationships between the systems. Related topics such as physical abnormalities and diseases of the systems will be integrated where possible. Laboratory work will include experiments, dissection, microscope work and the study of charts and models. Three one-hour lectures and one two-hour laboratory period per week.

BI5520 Anatomy and Physiology II

A one-semester course; four credit hours. A continuation of BI5519 integrating genetics and embyology to provide a basic understanding of the principles of heredity, and the processes of foetal growth and development. Three one-hour lectures and one two-hour laboratory period per week.

BI5551 Genetics

A one-semester course; four credit hours. The lectures present the fundamental Mendelian principles and the exploration of more recent discoveries, including DNA molecule and the operon theory of micro-organisms, higher plants and animals.

New concepts of gene mutation and gene action are considered. Practical exercises are used to illustrate the principles. Three one-hour lectures and one three-hour laboratory period per week.

Prerequisite: One year of introductory biology subjects at the college level or permission of the instructor.

SC5011 Man and His Environment

A one-semester course; three credit hours. Study of the ecology of the ape, primitive man, and the cultured and urbanized man of today. The study of the progressive deterioration of man's balance with the rest of nature, showing the way man has to change his psychological attitudes in order to implement and develop new technical solutions. The study of the technical solutions necessary to solve the three major problems of today: overpopulation, inadequate resources and pollution. Three class hours per week.

SC5511 Physical Science I

A one-semester course; four credit hours. An integrated course which considers the basic principles of the physical universe, including the study of the composition of substances, the atmosphere, synthetics, the earth, and the universe, in an effort to develop an understanding of the relationship of the sciences to everyday life. Three class hours and one two-hour laboratory period per week.

SC5512 Physical Science II

A one-semester course; four credit hours. A continuation of SC5511. Three class hours and one two-hour laboratory period per week.

SC5503 Integrated Science I

A one-semester course; three credit hours. An introduction to basic chemistry and metabolism is followed by a consideration of the human body as a functioning unit. The nervous, circulatory, and respiratory systems are studied in detail. Three class hours per week.

SC5504 Integrated Science II

A one-semester course; three credit hours. A continuation of SC5503 covering the remainder of the body's systems. An introduction to microbiology is included, emphasizing classification of microorganisms, methods of destruction, removal, and inhibition of microorganisms, and immunity. Three class hours per week.

SC5599 Research Topics in Science

An open-ended investigatory course with credits varying from one to three hours. Designed for the advanced student who is interested in a career in the sciences. The student will work on a topic of his choice under the direction of one faculty member. Topics available include areas in the biological, earth and physical sciences. Interested students should obtain a list of faculty members showing their areas of specific interest and then consult with the faculty member of his choice before registering for the course. Limited to one semester.

THIS COURSE DOES NOT FULFILL THE SCIENCE REQUIREMENTS FOR GRADUATION.

Prerequisite: Permission of the instructor.

SC5999 Special Topics in Science

A one-semester course; ont to three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Class hours equivalent to credit hours.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

NS6601 Nursing I - Fundamentals of Nursing

A one-semester course; eight credit hours. This course is designed to help the student to develop first an understanding of normal health needs and the basic concepts and skills necessary to render safe and effective bedside nursing care. Basic mental health concepts and communication skills, nutrition, pharmacology, and the preventive aspect of rehabilitation are introduced. Four class hours and twelve hospital practice hours per week.

NS6602 Nursing II - Maternal and Child Health Nursing

A one-semester course; eight credit hours. This course provides a study of the knowledge, skills, and attitudes necessary to afford effective care of patients throughout the maternity cycle, the newborn infant and the child from infancy through adolescence. Opportunity is offered to study the psychological development of the child concurrently with the normal physical growth and development. This combination provides an understanding of the total child when he is ill and when he is well. Diet therapy and pharmacology are integrated throughout. Public health and the therapeutic aspect of rehabilitation are introduced. Four class hours and twelve hospital practice hours per week.

Prerequisite: NS6601

NS6651-NS6652 Mental and Physical Illness I and II

A two-semester course; 8 & 10 credit hours. This course emphasizes the principles and practice of comprehensive nursing care in relation to current major health problems. Emphasis is placed on the biophysical pathology in relation to the nursing care needs and emotional reactions of the individual patient. Stress is placed in the promotion of mental health and the prevention of mental illness. Principles of rehabilitation, nutrition and pharmocology are stressed throughout. Concurrent laboratory experiences provide opportunity for students to investigate complex nursing care problems.

Prerequisite: NS6602

NS6682 Seminar on Nursing

A one-semester course; three creidt hours. Course is designed to provide students with an appreciation of the historical development of nursing, the present and future trends in nursing education and practice, and the role of nursing organizations. Opportunities for, as well as problems and responsibilities of, the registered nurse are discussed. Three class hours per week.

Prerequisite: NS6601

HS6651 Introduction to Health Services

A one-semester course; two credit hours. This introductory course will outline those health institution services which are part of patient care. Topics will include direct and indirect patient care facility departments. Field trips to various related health care institutions are included. One two-hour lecture per week.

MR6605 Medical Terminology I

A one-semester course; two credit hours. A study of prefixes, suffixes, abbreviations, disease, operative, and drug terms. Terms will be taught by anatomical system with medical science lectures included. Two class hours per week.

MR6606 Medical Terminology II

A one-semester course; two credit hours. A continuation of Medical Terminology I. Two class hours per week.

Prerequisite: MR6605

NH6613 Principles of Nursing Home Administration I

A one-semester course; four credit hours. Orientation to the general administration of nursing homes. Study of departmental organization and management. Analysis of community resources and interrelationships. Survey of local, state, and federal health and safety regulations and standards of environmental health and safety. Classes are conducted in a local nursing home affiliate. Four class hours per week.

NH6614 Principles of Nursing Home Administration II

A one-semester course; four credit hours. Study of the psychology of patient care, principles of medical care, therapeutic and supportive services in long-term care of the nursing home patient. Discussion of the personal and social care of the elderly. Classes are conducted in a local nursing home affiliate. Four class hours per week.

Prerequisite: NH6613

NH6671 Internship in Nursing Home Administration

A one-semester course; nine credit hours. Practicum supervised by licensed nursing home administrator in clinical facility. Opportunity to observe all phases of nursing home clinical practice. Special instruction and practice in nursing home plant management. Additional lectures by visiting professors of allied health services. Sixteen clinical hours per week.

NH6672 Advanced Internship in Nursing Home Administration

A one-semester course; nine credit hours. Advanced practicum supervised by licensed nursing home administrator. Experience in departmental structure of clinical facility. Special attention given to nursing home plant planning and instruction in medical records management and medico-legal standards. Sixteen clinical hours per week.

Prerequisite: NH6671

PS6551 Gerontology

A one-semester course; three credit hours. The unique physical and mental characteristics and problems of the elderly with which administration of nursing home facilities should be familiar. Three class hours per week.

FA7051 Introductory Photography

A one-semester course; three credit hours. This course provides the basic theory and practice of black and white photography. It covers such topics as camera controls, exposure, the nature of available and artificial light, negative and positive materials and chemicals, composition, and film and print processing procedures. A variety of assignments provides practice in the use of photographic equipment, solving photographic problems, and processing photomaterials in the darkroom. Two class hours and one two-hour laboratory workshop period per week.

Prerequisite: Permission of the instructor.

FA7052 Intermediate Photography

A one-semester course; three credit hours. Advanced techniques and projects in black and white photography, and the basic theory and practice of color photography. Emphasis is on photographic self-expression and the techniques of creative photography, including an introduction to studio and laboratory controls. Projects may be done in black and white or color. Part of the course allows students to work in a variety of different areas of photography according to each student's interest and desire. This multidirectional portion of the course may include photography, photomicrography, portraiture, photojournalism, and the photo essay. Two class hours and one two-hour laboratory - workshop period per week.

Prerequisite: Introductory Photography and permission of the instructor.

FA7081 Analysis of Visual Works of Art

A one-semester course; three credit hours. Discussion and evaluation of visual works of art with special emphasis on painting. The class will deal with such questions as: What is Art? What is the role of Beauty in the definition of Art? How does one evaluate a work of Art? What is Creative Process? Who is the Creative Person? Three class hours per week.

FA7082 Historical Survey of Visual Ideas

A one-semester course; three credit hours. Discussion and evaluation of visual works of art from pre-history to present day. While the first semester dealt with general concepts of art as related to all works of art, this course will place emphasis on the unique contribution of individual cultures in the development of the western world. Three class hours per week.

Prerequisite: FA7081 or permission of the instructor.

FA7083 Studio Art: Two-dimensional Expression I

A one-semester course; three credit hours. An introduction and exposure to various materials that have the potentiality for two-dimensional expression. Emphasis will be on the experiencing of new materials and the inherent properties that each of these materials have. All materials shall be provided by the student. There will be a total of five units each exploring a different medium of expression. Three two-hour classes per week.

FA7084 Studio Art: Two-dimensional Expression II

A one-semester course; three credit hours. An introduction to composition and structure in two dimensions. Emphasis will be placed on explorations into the relationship between FORM and SPACE on the flat surface. Having come to some understanding of the potentialities of various materials, this semester will focus on using those materials to create compositions that involve a more complex analysis of space and form. The various visual elements of position, size, shape, line, color density, texture, space will be analyzed as to their function in a particular composition. Three two-hour classes per week.

Prerequisite: FA7083

FA7085 Studio Art: Three-dimensional Expression I

A one-semester course; three credit hours. An introduction and exposure to various materials that have the potentiality for three-dimensional expression. Emphasis will be on the experiencing of new materials and the inherent properties that each of these materials have. All materials shall be provided by the students except those used in the first unit. There will be a total of five units each exploring a different medium of expression. Three two-hour classes per week.

FA7086 Studio Art: Three-dimensional Expression II

A one-semester course; three credit hours. Emphasis will be on explorations into the relationship between FORM and SPACE. Having come to some understanding of the potentials of various materials, this semester will focus on using these materials to create compositions that involve a more complex analysis of space and form. The student will keep a journal on responses to the materials and the problems. All materials shall be provided by the student. Three two-hour classes per week.

Prerequisite: FA7085

TH7765 Introduction to the Theatre

A one-semester course; three credit hours. An introductory course which will survey the development and techniques of modern drama. Instruction will be given in acting, directing and the technical aspects of play production. Three class hours per week.

TH7775 Fundamentals of Play Production

A one-semester course; three credit hours. The methods and techniques of play production. Practical laboratory work, seminars, and demonstrations. Lighting the stage, set construction, constume design and construction, make-up and other theatre related activities are performed and discussed. First-hand experience is gained by participating in aspects of play production. Three class hours per week.

Prerequisite: Permission of the instructor.

FA7999 Special Topics in Fine Arts

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

MU7091 Introduction to Music

A one-semester course; three credit hours. Music of European, American, and non-Western cultures from classical to rock will be studied. Exposure to various styles and forms of music, expansion of listening perception and knowledge of the materials and sociological aspects of music. Three class hours per week.

MU7093 Music of the Twentieth Century

A one-semester course; three credit hours. Trends in contemporary music beginning with Debussy and including electronic and other avant-garde music, music for theatre and film, and related to social and political trends of this century. 3 hours per week.

MU7095 An Introduction to Applied Music: Skills and Professions

A one-semester course; three credit hours. The course is designed for the student interested in finding out whether he would like a career in or associated with music, regardless of any musical background. Exploration of performance, improvisation, composition, instrument construction and maintenance, education, therapy, publishing, business and other professional areas. Development of marketable skills. Guest speakers and field trips. Three class hours per week. No prerequisite.

PH1101 Introduction to Philosophy I

A one-semester course; three credit hours. The aims, nature and problems of philosophy and its methods of inquiry and explanation, such as intuitionism, rationalism, empiricism, and pragmatism. The sources, limitations and validity of knowledge, with particular attention to the positions of Locke, Berkeley, Hume and Kant. Concludes with examination of basic ethical theories. Three class hours per week.

PH1102 Introduction to Philosophy II

A one-semester course; three credit hours. Critical analysis of fundamental assumptions, teachings and theoretical and practical implications of the major schools of philosophy, with particular attention to views about God, man, nature and society. Three class hours per week.

PH1151 Introduction to Logic

A one-semester course; three credit hours. Course will inquire into the nature of critical thinking. Such topics as the functions of language, experiemtnal truth and logical validity, the structure of deductive arguments, and basic inductive methods will be considered. Three class hours per week.

PH1999 Special Topics in Philosophy

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

RE1101 World Religions

A one-semester course; three credit hours. A comparative study of the major religions of the world, including Hinduism, Buddhism, Taoism, Confucianism, Sikhism, Judaism, Christianity and Islam. Three class hours per week.

RE1102 Contemporary Western Religion

A one-semester course; three credit hours. A study of the major current movements in theology and practice of religious life, with emphasis on American religion. Death of God, religious atheism, secular Christianity, the charismatic revival, and the Jesus movement are among the themes discussed. Opportunity will be given for field work in the religious life of the Merrimack Valley. Three class hours per week.

PE1001 Adapted Physical Education

A one-semester course; two credit hours. This course is geared to meet the specific needs of students who have medical problems in weight control, physical handicaps. Special emphasis on individualized programs of exercise, posture control and corrective exercise. Four class hours per week.

PE1002 Archery

A half-semester course; one credit hour. Basic skills and techniques, cost, care and maintenance of equipment. Interclass competitive shooting. Field trips for practical hunting experience. Four class hours per week.

PE1003 Backpacking

A half-semester course; one credit hour. A course designed to acquaint the student with the recreational and fitness benefits of backpacking. The importance of the selection and maintenance of equipment will be discussed. What to wear, what to pack, where to go, etc. Trips and hikes with the Outing Club will acquaint the student with local places to hike. Four class hours per week.

PE1004 Badminton

A half-semester course; one credit hour. Basic strokes (grip, stance, form), rules of the game, care and selection of equipment. Class tournament arranged. Four class hours per week.

PE1005 Basketball

A half-semester course; one credit hour. Basic knowledge, techniques and the practice of fundamentals. Four class hours per week.

PE1006 Bowling

A half-semester course; one credit hour. The fundamentals of ten pin bowling. Class will be held off campus. Arrangements will be made for transportation. Students pay a nominal charge for each game bowled. Four class hours per week.

PE1007 Out-door Survival Skills

A half-semester course; one credit hour. Instruction in basic campcraft skills, firebuilding, outdoor cooking, lashing, temporary shelters, toolcraft (knife, hatchet, axe) and an underlying emphasis on conservation and preservation of land, water and wildlife. Four class hours per week.

PE1008 Canoeing

A half-semester course; one credit hour. Basic instruction for bow and stern, paddling, canoe safety and canoe tripping. Four class hours per week.

PE1009 Fencing

A half-semester course; one credit hour. A basic course in the art of French foil fencing; fundamental attacks, defense and bouting strategy will be included. Four class hours per week.

PE1010 Field Hockey

A half-semester course; one credit hour. Designed for those students interested in team sports. Basic instruction will include the fundamental skills and team play. Four class hours per week.

PE1011 Fly Fishing-Spin Casting

A half-semester course; one credit hour. Cost, selection and care of various types of fishing equipment. Fundamental skills and techniques. Students will be taken off campus for practical application of skills acquired. Four class hours per week.

PE1012 Folk and Square Dancing

A half-semester course; one credit hour. Broad range of elementary folk dance including dances from other countries. Four class hours per week.

PE1013 Fundamentals of Movement

A half-semester course; one credit hour. Concepts of the basic principles and practices of body movement. Body development, exercises and posture are emphasized. Four class hours per week.

PE1014 Golf

A half-semester course; one credit hour. The fundamentals of golf: grip, stance, rules, swing, and etiquette. Practice will be given with long and short irons, drives and putters. Four class hours per week.

PE1015 Golf - Intermediate

A half-semester course; one credit hour. Designed for students seeking further skill and knowledge beyond the beginning level. The majority of instruction will be held on the golf course. Four class hours per week.

PE1016 Gymnastics

A half-semester course; one credit hour. Develops performance ability in the execution of elementary apparatus and tumbling. Develops skill in the use of safety procedures. Four class hours per week.

PE1017 Karate

A one-semester course; two credit hours. A progressive program of instruction. Designed for the student seeking skill, knowledge and a philosophy of this oriental sport. There is no contact; but a series of precise exercises leading to proficiency of technique. Four class hours per week.

PE1018 Modern Dance

A half-semester course; one credit hour. A study of the fundamentals of modern dance techniques and personalities contributing to the development of dance in America. Open to both male and female students. Four class hours per week.

PE1019 Physical Conditioning - Men

A one-semester course; two credit hours. A progressive, individualized program of skills and activities designed to improve both muscular and cardiovascular endurance. Would include jogging, exercise and weight. Four class hours per week.

PE1020 Self-Defense

A half-semester course; one credit hour. Instruction and practice in the art of self-defense for men and women. Strategy, skill and physical conditioning. Valuable skills can be attained for use in emergency situations. Four class hours per week.

PE1021 Senior Life-Saving

A one-semester course; two credit hours.' Standard Blue Cross senior life-saving certificate issued upon completion of the course. Four class hours per week.

Prerequisite: PE2126 or equivalent

PE1022 Skin and Scuba Diving

A one-semester course; two credit hours. Basic skin and scuba diving skills for the advanced swimmer. Also to acquaint students with the importance of careful selection and maintenance of equipment. Classes will be held off campus. Successful completion of the course will lead to national certification as well as an opportunity for advanced training. Four class hours per week.

Prerequisite: PE2126 or equivalent

PE1023 Slimnastics - Women

A half-semester course; one credit hour. Fundamentals of movement and weight control. Exercise routines adjusted to meet individual needs and executed to contemporary music. Four class hours per week.

PE1024 Soccer

A half-semester course; one credit hour. Basic skills in heading, dribbling, and shooting as well as strategy and rules of the game. Inter-class competitions. Four class hours per week.

PE1025 Softball

A half-semester course; one credit hour. Basic skills and techniques of softball, including rules, strategy and safety. Inter-class competition stressing teamplay and playing courtesies. Four class hours per week.

PE1026 Swimming

A half-semester course; one credit hour. Fundamentals of elementary and intermediate swimming and diving with emphasis on individual achievement and water safety. Four class hours per week.

PE1028 Tennis I

A half-semester course; one credit hour. Fundamentals of tennis, grip, forehand, backhand, serve, etc. Rules of the game, strategy, and care and selection of equipment. Four class hours per week.

PE1028 Tennis II (Intermediate)

A half-semester course; one credit hour. Instruction and practice in advanced techniques and skills to attain proficiency. Students must meet minimum requirements during the first week of class in order to remain in the course. Four class hours per week.

PE1029 Volleyball

A half-semester course; one credit hour. Basic knowledge of the rules and regulations, techniques, fundamentals, skills, and their application in game situations. Four class hours per week.

PE1030 Water Safety Instruction

A one-semester course; two credit hours. Methods of teaching swimming and life-saving techniques. Successful completion will result in certification in water safety instruction. Four class hours per week.

Prerequisite: PE2121 or equivalent

PE1031 Weight Training

A half-semester course; one credit hour. Basic principles and skills of weight training. Emphasis on the cardiovascular and flexibility activities. Four class hours per week.

PE1032 Wrestling

A half-semester course; one credit hour. Basic skills, techniques and strategies of wrestling. Designed to improve both muscular and cardiovascular endurance, as well as improve ability in various wrestling techniques. Four class hours per week.

PS1101 Introduction to Psychology

A one-semester course; three credit hours. Survey of the more important areas of psychology. Study of behavior, including maturation and development, emotions, motivation, learning, intelligence, conflict, psychotherapy and perception. Three class hours per week.

PS1151 Child Psychology

A one-semester course; three credit hours. Study of child development from the behavioral aspect. Motor, speech, social, emotional and play development are emphasized. A research paper on a particular kind of child or on one age level is required. Three class hours per week.

Prerequisite: PS1101

PS1152 Adolescent Psychology

A one-semester course; three credit hours. Study of adolescent development from the point of view of both the adult and the adolescent. The emotional, social, intellectual and other phases of development are considered. Three class hours per week.

Prerequisite: PS1101

PS1153 Educational Psychology

A one-semester course; three credit hours. Major psychological factors in human development related to problems in the school situation; teacher's role in school motivation; conceptual learning, problem solving and the development of emotional behavior, attitudes and values; learning of skills; retention and transfer; and measurement of student abilities and achievement. Recommended for students contemplating future study in education or psychology. Three class hours per week.

Prerequisite: PS1101

PS1351 Social Psychology

A one-semester course; three credit hours. The social matrix of individual behavior. The shaping of personality by face-to-face relations with one other, two others, or a group. Why behavior is different in a group. Prejudices as perception. Group influence on masculine and feminine identity. The group and the search for meaning. Three class hours per week.

Prerequisite: PS1101

PS1651 Industrial Psychology

A one-semester course; three credit hours. An introduction to problems of human relations in business and industry. Such problems as selection, placement, conflict, superivision, motivation and cooperation will be examined. The case method will be used extensively. Three class hours per week.

PS1751 Abnormal Psychology

A one-semester course; three credit hours. The study of the etiology, treatment and prevention of mental disorders. Includes study of functional and organic psychoses, psychoneuroses, and borderline maladjustments. Three class hours per week.

Prerequisite: PS1101

PS1999 Special Topics in Psychology

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficient for the project and permission of the instructor.

SO3318 Physical Anthropology: Origins of Man

A one-semester course; three credit hours. Taught by one instructor, Physical Anthropology is a sub-division of Antrhopology, and is a beginning course. The main focus of the course is to trace the evolutionary history of our species, with discussions on evolutionary theory, evolutionary process, and examination of fossil evidence relevant to man. Human variation (physical) and origins of human behaviors would conclude the course. Three class hours per week.

SO3319 Cultural Anthropology

A one-semester course; three credit hours. A study of the cultural diversity of contemporary man. Language, religion, philosophy, kinship, and political organization of selected non-European people to be studied with special emphasis on the American Indian. Three class hours per week.

SO3321 Principles of Sociology

A one-semester course; three credit hours. Study of the social order, and of human behavior as motivated and influenced by group membership, and by culture. Analysis of structure and functions of the major social institutions. Three class hours per week.

SO3331 Marriage and the Family

A one-semester course; three credit hours. Examination of marriage and the family from a social-psychological point of view. Consideration of such areas of adjustment as emotional, physical, social, financial, religious and legal. Three class hours per week.

Prerequisite: SO3321

SO3333 Contemporary Social Problems

A one-semester course; three credit hours. Analysis of the origins, extent, and significance of contemporary social problems. The course will be concerned with changes in social patterns and trends, with emphasis on the causes of group disintegration and reorganization. Three class hours per week.

Prerequisite: SO3321

SO3343 Juvenile Delinquency

A one-semester course; three credit hours. This course will concern itself with an in-depth study of juvenile delinquency: its various causes, its sociological impact on the community, as well as present rehabilitative efforts which attempt to cope with this serious contemporary problem. Three class hours per week.

Prerequisite: SO3321

SO3999 Special Topics in Sociology

A one-semester course; three credit hours. Directed readings, directed research or seminar in specific topics in the discipline. Syllabus to be approved by department and division chairmen prior to registration. Three class hours per week or equivalent.

Prerequisite: An interview which demonstrates a working knowledge of fundamentals of the discipline sufficent for the project and permission of the instructor.

HU2000 Humanities: The Shape of Now

A one-semester course; three credit hours. A study of the past in the present. An interdisciplinary focus on the behavior of Man, starting with a study of contemporary social/political, biological and spiritual/ethical attitudes. The course will consider the development of each up to the present. Sequence of topics: The Major Problems of Today; The Origin of Man; The Emergence of a Civilization. Format: a colloquium involving a natural scientist, a sociologist/anthropologist, a political scientist/historian and a fine arts/philosophy professor. Three class hours per week.

HU2001 The Year 2001: The Shape of the Future.

A one-semester course; three credit hours. Taught by a team of instructors in an interdisciplinary approach, the course relates the natural sciences, humanities and social sciences to the future possibilities for man. Students will also be involved in helping to construct a future utopia by designing that aspect of the utopia which interests him, thus enabling the student to interpret emerging values, attitudes and influences which are likely to shape future society. Three class hours per week.

RT6511 Radiologic Science I

A one-semester course; three credit hours. Designed to examine the fundamentals of physical principles of electrical and x-ray physics, and the operational study of x-ray equipment and auxiliary devices. The course will examine fundamental and derived units, mechanics matter, magnetism and electricity, electromagnetism, generators, motors and transformers. Three class hours per week.

RT6512 Radiologic Science II

A one-semester course; three credit hours. Emphasis will be placed on the formation of ionizing radiation by further analysis of x-ray and other types of circuits, tubes, etc., laws of motion, thermal considerations, optics and lens systems, and radioactivity. Three class hours per week.

Prerequisite: RT6511

RT6517 Radiologic Orientation I

A one-semester course; four credit hours. This course will offer a comprehensive and detailed study of the history of x-ray technology and radiology, medical ethics, elementary radiation protection, medical terminology, darkroom chemistry, basic principles of radiographic exposure, preliminary radiographic positioning and radiographic osteology. Emphasis will be placed on the understanding of radiologic technology and its place in the hospital setting. Two two-hour classes and one one-hour class per week.

RT6518 Radiologic Orientation II

A one-semester course; four credit hours. This course will continue basic positioning, radiographic exposure, and their interrelated principles. An evaluation and study of the use of contrast media. Nursing procedures related to radiology and radiologic technology, pediatric positioning will be considered. Two two-hour classes and one one-hour class per week.

Prerequisite: RT6517

RT6551 Radiologic Technology I

A one-semester course; three credit hours. The following subjects will be examined in detail: a continuation of radiographic positioning, advanced radiographic positioning, radiologic osteology. Three class hours per week.

Prerequisite: RT6518

RT6552 Radiologic Technology II

A one-semester course; three credit hours. The following subjects will be studied in detail: intra-oral radiography, a survey of medical and surgical diseases, departmental administration, equipment maintenance. Three class hours per week.

Prerequisite: RT6551

RT6552a Hospital Practicum

A concurrent aspect of Radiologic Technology I and II. The student will apply, under the direction and supervision of the affiliate hospitals, principles learned in the classroom. Emphasis will be placed on solidification of theoretical knowledge in the hospital setting. Activities will be under the direction of the college and the liaison instructor in the affiliate hospitals.

Prerequisite: Must be taken concurrently with RT6551 and RT6552

RT6561 Principles of Radiologic Technique I

A one-semester course; four credit hours. The student will study radiographic exposure, radiation protection, and special procedures as they relate to radiology and radiologic technology. Three two-hour classes per week.

Prerequisite: RT6517

RT6562 Principles of Radiologic Technique II

A one-semester course; four credit hours. This course will study in detail the principles of radiation therapy, radioactive isotopes and film critique. Three two-hour classes per week.

Prerequisite: RT6561

PI5510 Physics for Respiratory Therapists

A one-semester course; four credit hours. The course presents physics material with special emphasis on the physical principles and topics relating to Respiratory Therapy. Topics of special interest will include: mechanics of fluid flow, heat exchange in evaporation and condensation, gas laws. Three class hours and one two-hour laboratory period per week.

Prerequisite: RT6613 and RT6615

RT6601 Introduction to Respiratory Therapy Procedures

A one-semester course; three credit hours. Three class hours per week. The lectures emphasize the history, manufacture, regulations, and safety precautions involved with oxygen. Flow regulating devices and indications and procedures for the use and administration of oxygen and other medical gases are discussed.

Prerequisite: RT6621 concurrently or permission of the instructor

RT6602 Aerosol Therapy and Pharmacology

A one-semester course; three credit hours. Theory and procedures of humidity and aerosol therapy, including an investigation into the devices currently employed in the field, and a survey of aerosol agents and the pharmacological theory involved. Three class hours per week.

Prerequisites: RT6621 concurrently or permission of the instructor

RT6607 Seminar for Technicians

A five-week course offered in the summer; four credit hours. This program is designed to round out the clinical experience and subject material presentation of the student in anticipation of entrance into progresional life. Requirement for one-year certificate respiratory technician students only.

RT6608 Certification Review for Respiratory Therapy Technicians

A one-semester course; three credit hours. The course is open to students who have finished a full year of study in a respiratory therapy curriculum or who have a year or more working experience as a respiratory therapy technician. The objective of the course is to help the student and working professional in organizing and reviewing the materials found in the Respiratory Therapy Technician Certification Examination. Three class hours per week. Requirement for associate degree candidates.

RT6613 Ventilatory Management

A one-semester course; three credit hours. Ventilation and emergency therapy, including all types of ventilators and their classification, units for home use, and the principles and procedures of cardio-pulmonary resuscitation. Three class hours and one three-hour laboratory period per week.

Prerequisite: RT6622 concurrently or permission of the instructor

RT6615 Cardio-Pulmonary Physiology

A one-semester course; three credit hours. This course offers the student an in-depth analysis of the physiology of respiratory systems. Physiological states in cardio-respiratory disease are investigated. Three class hours per week.

Prerequisite: RT6622 concurrently or permission of the instructor

RT6616 Cardio-Pulmonary Technology

A one-semester course; three credit hours. The course will cover the use of testing methods to monitor the extent of cardio-pulmonary disease. Among the testing methods studied are those used for blood gas analysis, and those used in pulmonary function studies.

Prerequisite: RT6617 concurrently or permission of the instructor

RT6618 Respiratory Intensive Care

A one-semester course; three credit hours. The objectives of this course are to bring together all the elements needed by the practicing therapist in the maintenance of life-supportive systems used in the treatment of the critically ill pulmonary or coronary patient. Methods of assisting the physician through information gathering and technical advisement will be considered. Three class hours per week.

Prerequisite: RT6654 concurrently or permission of the instructor

RT6650 Directed Studies in Respiratory Therapy

A one-semester course; three credit hours. This is a seminar course which allows the student under advisement of the instructor to investigate specialized areas of respiratory therapy. The course is designed to guide the student to a mastery of the skills needed in library and original clinical research. One one-hour lecture and two tutorial sessions per week.

Prerequisite: RT6654 concurrently or permission of the instructor

RT6651 Interdepartmental and Interpersonal Relations

A one-semester course; two credit hours. This course integrates the psychology of patient care and interpersonal relations with the principles of team patient care and hospital organization. An analysis is made by the student of actual patient care situations and hospital organizational structures. Two class hours per week. Required course in AS program; offered in the 4th semester.

RT6621 Seminar I (Respiratory Therapy)

Four credit hours, one semester in duration, meeting a minimum of two hospital working days per week at a hospital affiliated with the program. The course is designed to acquaint the student with the hospital environment and to facilitate the student's mastery of some of the basic patient-care operations used in respiratory therapy. The objectives of the course are chosen to integrate classroom theory with the practicalities of clinical practice. Seminar I also includes forty-eight hours of introductory clinical practice which are conducted in the summer prior to the start of classes.

Prerequisite: RT6601 and RT6602 concurrently

RT6622 Seminar II (Respiratory Therapy)

Four credit hours; one semester in duration, meeting a minimum of two hospital working days per week at a hospital affiliated in the therapy program. The students are given the opportunity to perform physiological tests, including blood gas analysis and pulmonary function test, and is guided in exercises concerned with hospital fiscal management and medical allocations. In addition, the student continues to practice and groom his previously acquired patient care skills through the application of the psychology of patient care.

Prerequisite: RT6613 and RT6615 concurrently

RT6617 Seminar III

Four credit hours, one semester in duration, meeting two hospital working days per week at a hospital affiliated in the therapy program. The students are given the opportunity to perform physiological tests, including blood gas analysis and pulmonary function test, and is guided in exercises concerned with hospital fiscal management and medical allocations. In addition, the student continues to practice and groom his previously acquired patient care skills through the application of the psychology of patient care.

Prerequisite: RT6616 concurrently

RT6654 Seminar IV

Four credit hours, one semester in duration, requiring a minimum attendance of two hospital working days per week at a hospital affiliated in the program. The student is given directed instruction in the patient care area as they apply to acute medical emergencies, extensive surgical, and accidental trauma, and to the maintenance of patients who have protracted cardio-pulmonary disorders. The student is allowed to direct much of his own activities. The investigation of actual patient care histories in order to identify the pathogenesis of disease processes which are of concern to the practicing respiratory therapist.

Prerequisite: RT6618 and RT6650 concurrently

PI5510 Physics for Respiratory Therapists

A one-semester course, four credit hours. The course presents physics material with special emphasis on the physical principles and topics relating to Respiratory Therapy. Topics of special interest will include: mechanics of fluid flow, heat exchange in evaporation and condensation, gas laws. Three class hours and one two-hour laboratory period per week.

Prerequisites: RT6613 and RT6615

RT6601 Introduction to Respiratory Therapy Procedures

A one-semester course, four credit hours. Three class hours per week plus forty-eight hours of introductory clinical experience in the hospitals. The clinical hours are conducted in the six weeks prior to the first classes and are designed to introduce the student with the hospital environment and general respiratory therapy functions. The lectures emphasize the history, manufacture, regulations, and safety precautions involved with oxygen. Flow regulating devices and indications and procedures for the use and administration of oxygen and other medical gases discussed.

RT6602 Aerosol Therapy and Pharmacology

A one-semester course; three credit hours. Theory and procedures of humidity and aerosol therapy, including an investigation into the devices currently employed in the field, and a survey of aerosol agents, and the pharmacological theory involved. Three class hours per week.

RT6607 Seminar for Technicians

A five-week course offered in the summer; four credit hours. This program is designed to round out the clinical experience and subject material presentation of the student in anticipation of entrance into progresional life. Requirement for one-year certificate respiratory technician students only.

RT6608 Certification Review for Respiratory Therapy Technicians

A one-semester course; three credit hours. The course is open to students who have finished a full year of study in a respiratory therapy curriculum or who have a year or more working experience as a respiratory therapy technician. The objective of the course is to help the student and working professional in organizing and reviewing the materials found in the Inhalation Therapy Technician Certification Examination. Three class hours per week. Requirement for associate degree candidates.

RT6613 Ventilatory Management

A one-semester course; three credit hours. Ventilation and emergency therapy, including all types of ventilators and their classification, units for home use, and the principles and procedures of cardio-pulmonary resuscitation. Three class hours and one three-hour laboratory period per week.

Prerequisite: RT6621 concurrently or permission of the
instructor

RT6615 Cardio-Pulmonary Physiology

A one-semester course; three credit hours. This course offers the student an in-depth analysis of the physiology of respiratory systems. Physiological states in cardio-respiratory disease are investigated. Three class hours per week.

Prerequisite: RT6621 concurrently or permission of the coordinator

RT6616 Cardio-Pulmonary Technology

A one-semester course; three credit hours. The course will cover the use of testing methods to monitor the extent of cardio-pulmonary disease. Among the testing methods studied are those used to monitor blood gasses changes, and those used in pulmonary function studies.

Prerequisite: RT6617 concurrently

RT6618 Respiratory Intensive Care

A one-semester course; three credit hours. The objectives of this course are to bring together all the elements needed by the practicing therapist in the maintenance of life-supportive systems used in the treatment of the critically ill pulmonary or coronary patient. Methods of assisting the physician through information gathering and technical advisement will be considered. Three class hours per week.

Prerequisite: RT6654 concurrently

RT6650 Directed Studies in Respiratory Therapy

A one-semester course; three credit hours. This is a seminar course which allows the student under advisement of the instructor to investigate specialized areas of respiratory therapy. The course is designed to guide the student to a mastery of the skills needed in library and original clinical research. One one-hour lecture and two tutorial sessions per week.

Prerequisite: RT6617 concurrently

RT6651 Interdepartmental and Interpersonal Relations

A one-semester course; three credit hours. This course integrates the psychology of patient care and interpersonal relations with the principles of team patient care and hospital organization. An analysis is made by the student of actual patient care situations and hospital organizational structures. Three class hours per week.

Prerequisite: RT6617 concurrently

RT6621 Seminar I (Respiratory Therapy)

Five credit hours, one semester in duration, meeting a minimum of two hospital working days per week at a hospital affiliated with the program. The course is designed to acquaint the student with the hospital environment and to facilitate the student's mastery of some of the basic patient-care operations used in respiratory therapy. The objectives of the course are chosen to integrate classroom theory with the practicalities of clinical practice.

Prerequisite: RT6601 and RT6602 concurrently

RT6622 Seminar II (Respiratory Therapy)

Five credit hours; one semester in duration, meeting a minimum of two hospital working days per week at a hospital affiliated in the therapy program. The students are given the opportunity to perform physiological tests, including blood gas analysis and pulmonary function test, and is guided in exercises concerned with hospital fiscal management and medical allocations. In addition, the student continues to practice and groom his previously acquired patient care skills through the application of the psychology of patient care.

Prerequisite: RT6616 and RT6651 concurrently

RT6654 Seminar IV

Five credit hours, one semester in duration, requiring a minimum attendance of two hospital working days per week at a hospital affiliated in the program. The student is given directed instruction in the patient care area as they apply to acute medical emergencies, extensive surgical, and accidental trauma, and to the maintenance of patients who have protracted cardiopulmonary disorders. The student is allowed to direct much of his own activities. The investigation of actual patient care histories in order to identify the pathogenesis of disease processes which are of concern to the practicing respiratory therapist.

Prerequisites: RT6618 and RT6650 concurrently

SH6679 Legal Stenography

A one-semester course; three credit hours. Development of a basic legal shorthand vocabulary. Study of the duties and responsibilities of the legal secretary in a law office. Three class hours per week.
Prerequisite: SH6622 and TW6622

SH6691 Legal Dictation and Transcription

A one-semester course; three credit hours. Development of the ability to take rapid legal dictation and to transcribe accurately. Students are required to type in correct legal format and be familiar with the use of legal instruments and documents. Study of the maintenance of a law library and typical law office procedures. Five class hours per week.
Prerequisite: SH6679

SK6651 Office Machines I

A one-semester course; one credit hour. Introduction and development of the BASIC skills needed to operate duplicating and photocopy equipment, adding-listing machines, electronic calculators and electric calculators rotary, printing and key-driven. Introduction to common types of transcribing equipment. Two class hours per week.
Prerequisite: TW6621 or equivalent

SK6652 Office Machines II

A one-semester course; three credit hours. Opportunity for intensive development in the operating of duplicating and photocopy equipment as well as adding machines and common types of calculators. Emphasis on executive typewriters and executory transcribing equipment. Study of reprographics, magnetic tape and automatic typewriting equipment. Four class hours per week.
Prerequisite: TW6622 or equivalent

SK6653 Machine Transcription

A one-semester course; three credit hours. Development of high-level skills in the use of transcription equipment. Emphasis is placed on the use of business, professional, and technical materials. Development of vocational transcription rates. Four class hours per week.
Prerequisite: TW6622

SK6655 Medical Machine Transcription

A one-semester course; three credit hours. Introduction to machine transcription and development of a medical vocabulary. Development of vocational competence in medical transcription. Four class hours per week.
Prerequisite: TW6622 and HS6601

SL6661 Secretarial Procedures I

A one-semester course; three credit hours. Theory and problems in office and records management, selection and maintenance of office supplies and equipment, dictation and transcription procedures, composition of business letters, processing of mail, and postal and shipping services. Three class hours per week.
Prerequisite: TW6622 and SH6622

SL6662 Secretarial Procedures II

A one-semester course; three credit hours. Receiptionist and telephone techniques, and handling travel arrangements. Preparation of business reports, statistical charts and graphs. Secretarial responsibilities for banking, insurance, investment and payroll services. Three class hours per week.

Prerequisite: TW6622 and SH6622

SL6665 Administrative Secretarial Procedures

A one-semester course; three credit hours. Development of judgments and insights needed by the executive secretary to function on the administrative or supervisory levels. Analysis of long-range office projects, determination of work priorities, organization of research information, and the place of human relations in the supervisory process. A case study approach to the problems of office supervision. Three class hours per week.

Prerequisite: SL6661

SL6668 Secretarial Field Experience

A one-semester course; three credit hours. Students are assigned to offices on the basis of interest and ability so that they may become a part of the business world before graduation. The student is supervised at the college by the departmental faculty and at work by the employer. One class hour, eight office hours per week.

Prerequisite: SH6671 and TW6631

SL6680 Medical Secretarial Procedures

A one-semester course; three credit hours. Theory and problems in the management of the medical office including filing, making appointments, completing medical forms, telephone techniques, medical bookkeeping, and dictation and transcription procedures related to the medical office. Three class hours per week.

Prerequisite: SH6677

TW6621 Typewriting I

A one-semester course; three credit hours. Foundation course for vocational typewriting. Development of correct basic typewriting skill. Introduction to short business and personal letters, tables, reports, and other typewriting applications. Four class hours per week.

TW6622 Typewriting II

A one-semester course; three credit hours. Development of requisite typing skill, experience and knowledge expected of a typist new to office employment. Development of ability to make basic editorial corrections and to type manuscripts, business forms, tabulations, and correspondence. Four class hours per week.

Prerequisite: TW6621 or equivalent.

AC6691 Elements of Accounting I

A one-semester course; three credit hours. Study of current accounting terminology. Introduction to the basic principles and practices of accounting. Topics include: double-entry system and the accounting equation, journals, ledgers, trial balances, work sheets, financial statements, cash and banking procedures, and payroll records. Four class hours per week.

AC6692 Elements of Accounting II

A one-semester course; three credit hours. Study of subsidiary ledgers, the voucher system, inventories, receivables and fixed assets. Introduction to accounting for partnerships and corporations. Opportunity for extensive practice through use of long problems and practice sets. Four class hours per week.

Prerequisite: AC6691 or equivalent

AC6693 Elements of Accounting III

A one-semester course; three credit hours. Intensive study of the voucher system, corporate organization and accounting, manufacturing accounts, budgeting and internal reporting, interim statements, and analysis of financial statements. Four class hours per week.

Prerequisite: AC6692 or equivalent

MA5641 Mathematics of Business

A one-semester course; three credit hours. A study of the mathematics of percentage, interest, discounts, depreciation, insurance, payroll, and statistical averages. Three class hours per week.

SH6621 Shorthand I

A one-semester course; three credit hours. Gregg shorthand principles, including the shorthand alphabet, brief forms, phrasing, and other abbreviating devices. Development of the ability to take dictation on practiced material at 60 to 80 words per minute. Study of the non-shorthand elements of spelling and punctuation. Four class hours per week.

SH6622 Shorthand II

A one-semester course; three credit hours. Reinforcement of shorthand principles, development of ability to take new matter dictation at 60 to 80 words per minute, and procedures and methods for handling simple office-style dictation problems. Four class hours per week.

Prerequisite: SH6621 or equivalent

SH6671 Shorthand III

A one-semester course; three credit hours. Development of ability to take dictation speeds at the 80 to 100 word levels. Emphasis is placed on the mechanics of English including spelling and punctuation and the growth of effective transcribing techniques. Five class hours per week.

Prerequisite: SH6622 and TW6622 or equivalent

SH6672 Shorthand IV

A one-semester course; three credit hours. Development of shorthand skill at the 100 to 120 word levels. Reinforcement of previously learned typing and shorthand skills to improve accuracy and speed of transcription. Advanced office-style procedures. Five class hours per week.

Prerequisite: SH6671

SH6673 Shorthand V

A one-semester course; three credit hours. Development of shorthand skill to the expert levels of 120 to 160 words per minute. Study of shorthand reporting short cuts. Vocabulary of executive dictation. Further development of transcribing skills. Emphasis on growth of ability to do conference reporting. Five class hours per week.

Prerequisite: SH6672

SH6641 Technical Stenography

A one-semester course; three credit hours. Study of shorthand for technical terms, phrases, and abbreviations peculiar to each technical field and to develop the ability to devise technical shorthand outlines. Preparation of technical reports with a proficiency in proofreading and exactness of work. Three class hours per week.

Prerequisite: SH6622 and TW6622

SH6677 Medical Dictation and Transcription

A one-semester course; three credit hours. Development of the shorthand vocabulary necessary to write from dictation and to transcribe medical dictation. Practice in preparing various kinds of medical reports. Five class hours per week.

Prerequisite: SH6671 and HS6601

TW6631 Typewriting III

A one-semester course; three credit hours. Extension of typewriting skill to higher performance levels. Emphasis on typing unfamiliar and unarranged kinds of materials. Statistical typing. Production typewriting. Four class hours per week.

Prerequisite: TW6622 or equivalent

TW6632 Typewriting IV

A one-semester course; three credit hours. Mastery of ability to produce long manuscripts related to reports, magazine articles and speeches. Development of the ability to compose correspondence and edit the business writings of others. Production typewriting with the development of vocational rates of speed. Four class hours per week.

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